National Park Service
U.S. Department of the Interior

Cape Hatteras National Seashore
Manteo, North Carolina

Cape Hatteras Light Station
Cultural Landscape Report

Cultural Resources • Southeast Region

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Cape Hatteras Light Station, Cape Hatteras National Seashore

Cultural Landscape Report

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National Park Service
Southeast Regional Office
Cultural Resources Division

2003

The cultural landscape report presented here exists in two formats. A printed version is available for study at the park, the Southeastern Regional Office of the National Park Service, and at a variety of other repositories. For more widespread access, this cultural landscape report also exists in a web-based format through ParkNet, the website of the National Park Service. Please visit www.nps.gov for more information.

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Cape Hatteras National Seashore
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Cape Hatteras National Seashore

Cultural Landscape Report

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Figure 1: Park Archives; Figure 2: Holland, 1968; Figure 3: Park Archives; Figure 4: Brown, 1957, Plate IV; Figures 5-9: Park Archives; Figure 10: From "Summary of Work Done on Cape Hatteras Lighthouse Area" in Park Archives; Figures 11-13: Park Archives; Figures 14-20: By Author.

Foreword

We are pleased to make available this cultural landscape report as part of our ongoing effort to provide comprehensive documentation for the historic structures and landscapes of National Park Service units in the Southeast Region. Many individuals and institutions contributed to the successful completion of this project. We would especially like to thank Cape Hatteras National Seashore Superintendent Larry Belli and his staff for their support and contributions to this work. Thanks also to Lucy Lawliss, Lead, NPS Park Cultural Landscapes Program, for her knowledgeable guidance throughout the project. Finally, we would like to recognize the labor and dedication of Susan Hart Vincent, author of this report. We hope that the study will be a useful tool for park management and for others interested in the history and significance of the cultural landscape of the Cape Hatteras Light Station.

Dan Scheidt
Chief, Cultural Resources Division
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I am also grateful to Lucy Lawliss, Lead, Park Cultural Landscapes Program, NPS, Washington, D.C., whose review and comments of this document were extremely valuable. Finally, I thank the Georgia Trust for Historic Preservation, Inc., whose cooperative agreement with the National Park Service has made this project possible.

Introduction

Management Summary

The Cape Hatteras Light Station Cultural Landscape Report (CLR) analyzes and provides treatment recommendations for the Cape Hatteras National Seashore, North Carolina (the park), to preserve and interpret the light station's historic resources at both the old and new sites. This report

1) examines the integrity of the historic resources associated with the Cape Hatteras Light Station,

2) makes specific landscape treatment recommendations for individual historic resources,

3) addresses the use and management of historic resources to support the goals of the park's interpretive program, and

4) specifies the overall treatment of the historic landscape to accommodate the non-historic resources (visitor center, access roads, parking area, etc.) necessary to manage a site open to the public.

Historical Summary

Since colonial times, the dangerous waters off North Carolina's coast have besieged sailors. Extending fourteen miles offshore, the shallow, shifting sands of the Diamond Shoals have caused the demise of many who sailed near shore, the common practice before modern navigational instruments. Sailing south, the most favorable current was the Labrador Current, which hugged the shoreline of North America. Upon return, sailors chose the Gulf Stream, which ran north just outside the Labrador Current.

At Diamond Shoals, however, the two currents flow extremely close to each other. Those sailing south held fast to the shore to avoid the northerly current. Faced with shallow shoals extending far into sea, and the narrow current channels, many vessels ran aground, or, worse, became victims of violent storms. Known today as the "Graveyard of the Atlantic," the Outer Banks is responsible for approximately 600 shipwrecks.

In 1803, the first Cape Hatteras lighthouse was built to aid navigation around the infamous Diamond Shoals. It was replaced in 1870 by a taller structure that contained the latest first order lens. Associated with the lighthouse were several buildings and dwellings to accommodate the light keepers and their families.

In 1935, the Light Station was abandoned by the Commerce Department and was transferred to the National Park Service (NPS). It became part of the Cape Hatteras National Seashore in 1937. At that time, encroaching shorelines compelled the NPS to take protective measures to save the lighthouse. For the next sixty years a variety of methods including steel groins, beach re-nourishment, and artificial dunes were installed. In 1935-36, the construction of artificial dunes by the Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) provided thirty years of protection by halting the westward movement of the shoreline.

Despite all these attempts, storms and constant scouring eventually destroyed the dunes, and the NPS began anew in 1980 to determine a strategy to protect this valuable resource. As a result of this effort, in 1999 the International Chimney Corporation, of Buffalo, New York, moved the entire light station 2,500 feet southwest to a new site approximately 1,600 feet from the shoreline.

The Cape Hatteras Lighthouse, at 193 feet from the base to the top of the lantern roof, is the tallest lighthouse in the United States, and the second

tallest in the world. It is a National Historic Landmark (NHL) and is recognized by millions of Americans. It stands as a regional symbol of North Carolina's Outer Banks, and a national symbol of America's maritime history.

Scope of Work and Methodology

This document is the result of a limited investigation of the light station site during the U.S. Lighthouse Service period (1850 to 1936) and the NPS period (1937 to the present). The report

1) examines the conditions of the old and new sites during the period of significance (1870 to 1935) and provides the management treatments necessary to achieve a similar setting,

2) studies the sites' natural and cultural resources, and

3) re-evaluates the existing NHL boundaries in light of the move and the treatment recommendations provided in this document.

Primary sources for investigating the Cape Hatteras Light Station were historical drawings, maps, period photographs, aerial photographs, and park master plans. Existing park documentation includes the park's *1938 Prospectus, Cape Hatteras National Seashore*; the *1939 Master Plan*; the *1966 Master Plan*; the *1984 GMP/DCP/Amended EA*; the 1978 Cape Hatteras Light Station District Nomination; the *1978 Status Report for Cape Hatteras*; the *1986 Report on the Preparation of the Comprehensive Design Keepers Quarters Landscape Plan for the Lighthouse, Cape Hatteras National Seashore*; the *1989 Cape Hatteras Lighthouse Complex Protection Alternatives, DCP/EA*; and the 1998 Cape Hatteras Light Station National Historic Landmark Nomination. Other primary sources reviewed were natural resource management reports including the 1936 Bi-Monthly Narrative Progress Reports for Cape Hatteras State Park, vegetation studies, engineering studies, and archeological reports. Secondary sources included local histories of Dare County and the Cape Hatteras Lighthouse. In addition to documentary research, site visits and park staff interviews were conducted.

For purposes of clarity, the CLR's use of the term "light station" will refer to all structures associated with, and including, the lighthouse. Additional terms used for the lighthouse itself include "tower" and "light." Also, the name of the historic dirt road leading to the lighthouse from 1803 until ca. 1960 is not known. For identification purposes, it will be called the "lighthouse road" or "lighthouse trace" throughout this document.

Study Boundaries

The Cape Hatteras Light Station is located in Dare County, North Carolina, within the Cape Hatteras National Seashore on Hatteras Island, one of a string of barrier islands known as the Outer Banks. These islands are constantly subject to the forces of wind and ocean currents that cause sand erosion and accretion, most dramatically during hurricanes and winter storms.

The park's authorized boundary includes 30,319 acres and covers approximately eighty miles of shoreline along the islands of Bodie, Hatteras, and Ocracoke. Located just above Cape Hatteras on Hatteras Island, the Study Area boundary includes the Light Station's old and new sites, the move corridor, associated parking areas and park facilities, and the 1936 CCC camp south of the lighthouse.

Summary of Findings

The Cape Hatteras Lighthouse stands today as testimony of man's determination to maintain a light at Cape Hatteras in the midst of one of the nation's most dynamic environments. For 200 years shifting sands, flooding, overwash, and high winds have been met with the most advanced engineering of the time. Such response has led to the recent relocation of the complex to a new site.

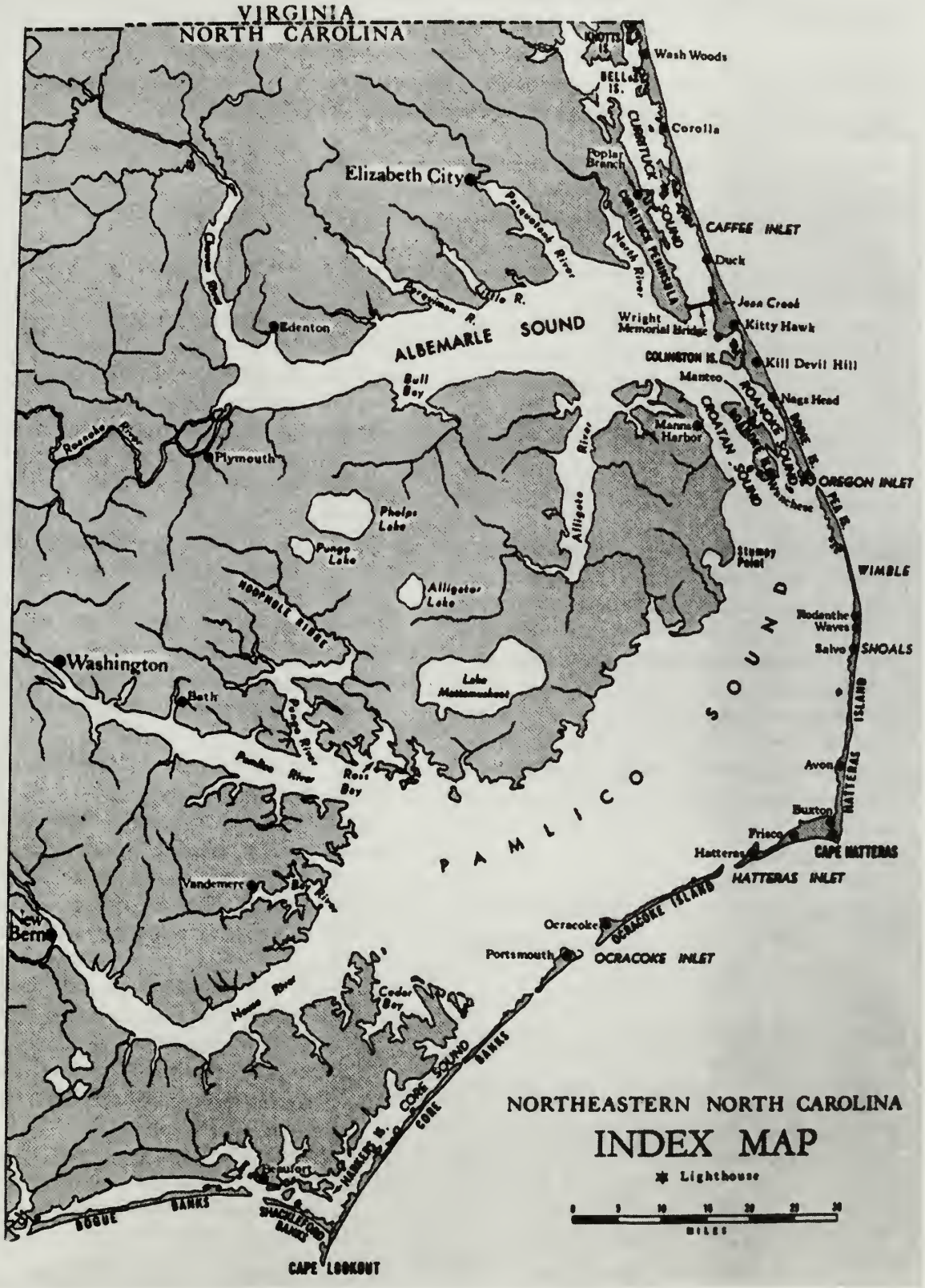

FIGURE 1. Location Map. Cape Hatteras Light Station, Cape Hatteras National Seashore, Outer Banks, North Carolina.

Today, the lighthouse setting represents the later part of the historic period (1870-1936) when the Civilian Conservation Corps built dunes and planted them extensively with native vegetation. The existing shrub thickets and pine/oak woodland are a direct result of those protection methods. The CLR recommends a preservation/ rehabilitation strategy to return the lighthouse complex landscape to this later part of the site's period of significance as it provides a direct link to the site's environmental history and the many efforts to protect the Cape Hatteras Lighthouse.

Furthermore, this strategy allows for future endorsements of significant events that are associated with efforts to protect the tower. It links the historic period's earlier efforts to the 1999 move as part of the lighthouse's ongoing history.

Site History

Pre-European Landscape

Native American groups occupied North Carolina's barrier islands as early as 100 B.C.E. The English encountered their descendants, the Poteskeets, Corees and Croatons, in the 16th century. The Indians occupied villages on high ground amidst maritime forests. The availability of freshwater, fish, and wild game was also a factor in determining village locations on the islands.

Three aboriginal occupations were found on Hatteras Island. Areas of present-day Buxton, Frisco, and Hatteras Village now occupy former Indian towns. The "Hatteras Indians," known by this name by the 1730s, were members of the Croaton Tribe and lived in a village on the Albermarle Sound side of present Buxton. They grew maize, beans, and curcubits, to supplement their diets of fish, shellfish, and deer.[1]

Vegetation

Beaches, dunes, sand ridges, sand flats, ponds, and salt marshes made up the barrier island topography. Distribution of native plants was dependent upon several factors, including moisture, salinity, elevation, and wind exposure. The earliest accounts (1798) describe Hatteras Island as covered with evergreen trees, including live oak (*Quercus virginiana)*, pine (*Pinus sp.*), and cedar (*Juniper sp.*). These species were primarily found on old dunes and sandy ridges located inland and on the sound side of the islands. Here, climax maritime forests grew, protected from salt spray and high wind.

Interspersed and at lower elevations were sand flats--open, wind-swept sandy areas of considerable acreage. Depending upon the availability of moisture and protection from salt spray, the sand flats varied in their vegetative content. Inland areas were dominated by trees, shrubs, and woody vines such as yaupon *(Ilex vomitoria)*, wax myrtle *(Myrica cerifera)*, bayberry (*M. pennsylvanica)*, red bay *(Persea borbonia)*, live oak, and pepper vine *(Ampelopsis arborea)*. Moist sand flats included narrow-leaf cattail *(Typha angustifolia)*, smooth cordgrass *(Spartina alterniflora)*, and black rush *(Juncus roemerianus)*. These freshwater species, along with beggar ticks *(Bidens sp.)*, pennywort *(Hydrocotyle sp.)*, and black willow *(Salix nigra)*, also grew along the edges of creeks and ponds.

Dunes varied from hills of shifting sands with little or no vegetation, to those where grasses had taken hold. American beach grass *(Ammophila breviligulata)* and sea oats *(Uniola paniculata)* were especially suited to this environment.

On the sound side, salt marshes were dominated by smooth cordgrass, saltmeadow cordgrass *(Spartina patens)*, black rush, and marsh elder *(Iva frutescens)*.[2] A more extensive list of native plants can be found in the appendix.

European Settlement

The first European to see the coast of North Carolina was probably Giovanni Verrazano, a Florentine, who sailed the eastern coast of North America in 1524. Verrazano described the barrier islands as an "isthmus" that separated the "Eastern Ocean" from the "Western Ocean." He described the land feature as one mile wide and 200 miles in length.

1. Louis Torres, *Historic Resource Study of Cape Hatteras National Seashore*. (Denver: Branch of Planning, Southeast/Southwest Team, NPS, 1985), 16, 27.

2. Clair Brown, *Vegetation of the Outer Banks of North Carolina*. (Baton Rouge: Louisiana State University Press, 1957), 3.

The next Europeans to sail to these islands were sent by Englishman Sir Walter Raleigh, whose expeditions to the New World are well known. His first attempt failed immediately, but his second try at Roanoke Island, entrusted to John White, in 1587, survived tenuously for a few years. Within a few months of landing, White returned to England for much-needed supplies. When he returned to Roanoke Island in 1590, the colonists had abandoned the site, leaving the mysterious carving "Croatoan" on a post at the entrance to the palisade.

The Roanoke Island colonists adopted Indian names of landmarks, such as "hatterask," referring to Pea and Hatteras Islands. "Croatoan" referenced a site west of Cape Hatteras on the sound side where an Indian village existed. Unfortunately, White failed to persuade his ship's captain to search additional sites and they sailed away, never learning the colonists' fate.

Colonial Period

A Carolina Charter issued by King Charles II of England in 1663 brought settlers to the mainland along the western shore of Albermarle Sound. The first to move to the barrier islands came from Virginia to Collington and Roanoke Islands around 1700.

As the English population grew and spread to other islands, settlers came in frequent contact with local Indians. In 1709, approximately forty Indians lived near present-day Buxton in a village known then as "Indian Town" or "Cape Hatteras Indian Town." English retaliation for an Indian attack in 1733 reduced the Hatteras Indian population to a handful. From then on the remainder lived in great poverty. By 1761, the tribe had moved to the mainland and was absorbed into English culture.[3]

Land Use

The barrier islands were excellent locations for stock grazing. The small islands prevented the need for fencing, and marsh grasses were good sources of stock food. By 1776, all the islands were grazed by livestock, including sheep, horses, cattle, and hogs. In addition to meat, settlers also maintained small vegetable gardens to supplement their diet. Many hunted waterfowl and fished as additional sources of food.

During the American Revolution, British soldiers frequently raided the islands for livestock. The easy access and defenseless inhabitants made such raids easy. For a short period during the war, however, a militia group protected the islands and on one occasion turned back a British landing party intent on taking cattle.

Maritime Industries

One of the earliest occupations in the Outer Banks, besides stock raising, was piloting. In 1734 the colonial government appointed and licensed pilots to guide ships through Ocracoke and Roanoke Inlets. Pilots and their families in 1766 were provided with land that later became the village of Ocracoke.

Other families in the Outer Banks supplemented their livelihood by scavenging. Whale oil and whale bones were extracted from whales that washed up on shore. In addition, locals scavenged shipwrecked cargo and timbers from wrecks off shore. By 1700, these were primary occupations.

Oral accounts of pirating and smuggling confirm a well-established practice in the 18th century, especially around Currituck and Okracoke Inlets. The infamous Edward Teach, also known as Blackbeard, terrorized the area in the early 18th century. Such a dangerous reputation as that attributed to the barrier islands was a large commercial disadvantage. Not only did the threat of pirates exist, but treacherous waters also created mayhem for ships traveling along the colony's coast.

Hydrology/Topography

Reports of changing shorelines appeared early in the 18th century. New Currituck Inlet opened in 1728, causing the loss or closing of Old Currituck Inlet by 1731. Hatteras Inlet, continually accreting

3. Torres, 17

sand, closed in 1755. Ocracoke Inlet, still dangerous and tricky, remained the main channel of supplies into the colony.

Circulation

The first English homesteads appeared on the sound side of the islands with enclosed gardens and yards to keep out livestock. Located in wooded tracts, or in hammocks, all had access to the sound for transportation. Rowboats and canoes were the primary means of travel.

The Outer Banks - Federal Period (1776-1865)

The Outer Banks

Through most of the 18th century, the Outer Banks were part of Hyde County, formed in 1775. In 1870, however, Dare County was created and included the barrier islands and part of the mainland.

Land Use. Bankers continued to live primarily on the sound side of the islands, protected from high winds and floodwaters. Population was sparse. The 1850 census showed a population of only 661 inhabitants, including 106 slaves, in the Cape Hatteras area.

All were self-sufficient, mastering the skills of mariner, farmer, stockman, carpenter, boat builder, fisherman, and hunter. Bankers allowed their horses, sheep, cattle, and goats to roam freely among the freshwater grasses and woodlands. They raised Indian corn, sweet potatoes, and other vegetables in small garden plots. In addition, fish and waterfowl brought protein to the table.

Primary occupations remained in fishing and stock raising. Most fishing occurred on a small scale until the 1850s when ice became available, and a local market developed.

Piloting was also an important occupation. Ships traveling to and from North Carolina's main coast had to negotiate the ever-changing inlets. Over the century, some were closed to large ships due to sand accretion. For example, the Roanoke Inlet closed to commercial traffic in 1811 and Currituck Inlet closed in 1828.

Other times new inlets would be created by storms. Hatteras and Oregon Inlets opened during the same storm on September 8, 1846. Continuous scouring made Hatteras Inlet an important byway by mid-century. Given these constant changes, the guidance of knowledgeable pilots was a necessity.

Other occupations defined the self-sufficiency of the Bankers. Harnessing the area's wind resources, they milled corn brought from the mainland in exchange for yaupon leaves and salted mullet. Three, possibly four, windmills were located on Hatteras Island. Shipbuilding grew out of the abundant oak and cedar forest near Bodie Island and Roanoke Island. Wrecking was another occupation, although much of this work involved sacrifice on the part of some and opportunity on the part of others. The saving and care of shipwrecked sailors and cargoes fell upon the inhabitants as maritime trade increased. Many regarded the task as an obligation to assist those in danger. Others took advantage of the goods washed ashore for their personal gain.

The isolation of the Outer Banks soon succumbed to tourism. Lowcountry planters and townsfolk came to Nags Head and Ocracoke to escape the summer diseases of the mainland. Small cottages were built at Nags Head on the leeward side around 1830 and Ocracoke built a hotel in 1838.[4]

Aids to Navigation. The U.S. Congress recognized the importance of navigation protection in 1789 when it was reported that only eleven lighthouses operated along the east coast. Two stood in the South, on Tybee Island, Georgia, and on Morris Island near the entrance to Charleston harbor, South Carolina. Of particular

4. Gary S. Dunbar, *Historical Geography of the North Carolina Outer Banks.* (Baton Rouge: Louisiana State University Press, 1958), 38.

urgency was protection around the treacherous Diamond Shoals.

The Department of the Treasury was authorized to administer all aids to navigation and appropriated funds for the construction of lighthouses. Among them, Shell Castle (1798) on Ocracoke Island, and the Cape Hatteras Lighthouse (1803) were built. Shell Castle Lighthouse was abandoned in 1820 and another one was built in 1823 near Ocracoke village. The Bodie Island Lighthouse was built in 1848 just south of Oregon Inlet.

Fifty-five lighthouses were constructed in the country by 1820. This figure grew to 204 by 1837. In 1852, the Department of the Treasury established the Lighthouse Board to govern all lighthouse establishments. That year 331 lighthouses stood around the nation's coastline.

1803 Cape Hatteras Light Station

Land Purchase

In April 1794, Congress allocated $44,000 for the construction of two light stations on the Outer Banks--Shell Castle on Ocracoke Island and Cape Hatteras on Hatteras Island. Four acres were purchased for $50 from William Jennett, Mary Jennett, Jabez Jennett, Aquilla Jennett, and Christian Jennett (designated guardian of minors under twenty-one years of age) on October 26, 1798, for the Cape Hatteras Light Station.[5]

Several years later, an additional forty acres were purchased for land to build a new keeper's quarters, the first one having been in disrepair. Pharoah Farrow was paid $200 on July 21, 1828, for the deed, which described the property line as:

> Beginning at Elizabeth Williams' line on the Cape Creek, and running with a line westward to a cedar stake, thence southwardly with another of said Elizabeth's lines to Jacob Farrow's line, thence East with said Jacob Farrow's line to the Cape Creek and from thence with said Elizabeth Williams' lines to the beginning.[6]

FIGURE 2. Cape Hatteras Light Station Survey of November 29, 1854, showing the 4-acre original tract and the 1828 40-acre tract, as found in Holland, 1968.

Topography/Hydrology

Eighteenth-century documentation reveals astonishing topographical changes taking place in the area of the Cape Hatteras Light. The 1854 survey (fig. 2) depicted a long dune line east of the lighthouse that paralleled the beach. In view of Nicholson's sketch (fig. 3), it appears the lighthouse stood atop this line of dunes, with the flat barren beach to the east.

However, dramatic topographic and hydrologic changes took place near the lighthouse through the next twenty years. In 1852, a narrow linear pond stretching east-west lay at the western edge

5. The sale was registered in the Registrar's Office of Currituck County on February 28, 1801.

6. A survey of the property has not been found.

FIGURE 3. Nicholson's Sketch of the Old Tower, Cape Hatteras, NC, October 24, 1870, showing the height of the original tower and the 1854 addition.

of the light station. Another north-south pond ran parallel to the lighthouse road approximately one-half mile to the north. This pond may have been associated with Cape Creek, the eastern boundary of the station property (formerly Farrow's) that drained north to the Pamlico Sound. By 1872, the north-south pond had moved east and enlarged, leaving a thin piece of land between it and the ocean. The linear east-west pond also appears to have enlarged (fig. 4).

At the same time, the shoreline was moving westward. As early as 1810 the sand hill at the base of the lighthouse was blowing away and its foundations were exposed. The problem persisted as late as 1850 when a board fence was erected around the base, four feet from the wall. The center was filled with brushwood. By 1872, beach erosion had claimed approximately 1,800 feet in front of the tower.

Structures

Cape Hatteras Lighthouse. The 1803 lighthouse was a ninety-foot brown sandstone and brick octagonal tower. It was built by Henry Dearborn, a former Congressman from Massachusetts. Built at a time of limited technology, the structure quickly proved inadequate.

First, the significance of recognizing a light tower by day, or a tower's "day mark," had never been considered. Thus, the tower was not painted and could not be discerned from the sea. At night, the twelve-foot lantern was visible, at best, for only eighteen miles. Finally, by 1834, the lantern was in such poor condition as to require replacement. The reflectors were changed in 1845, and again in 1848 to strengthen the beacon to 20 miles.

A letter, dated July 1851, from Lieutenant David D. Porter, U.S.N., commanding the mail steamer *Georgia* summarized the issue:

> Hatteras light, the most important on our coast,...[is], without doubt, the worst light in the world. Cape Hatteras is the point made by all vessels going to the south, and also coming from that direction; the current of the Gulf stream runs so close to the outer point of the shoals that vessels double as close round the breakers as possible, to avoid its influence. The only guide they have is the light, to tell them when up [sic] with the shoals; but I have always had so little confidence in [Cape Hatteras Lighthouse] that I have been guided by the lead, without the use of which, in fact, no vessel should pass Hatteras. The first nine trips I made I never saw Hatteras light at all, though frequently passing in sight of the breakers and when I did see it I could not tell it from a steamer's light, excepting the steamer's lights are much brighter. It has improved much latterly, but is still a wretched light.[7]

In 1854, Congress appropriated $15,000 for refitting the light and raising the tower to 150 feet. The addition was made of brick and housed a first order fresnel lens. At the same time the tower was painted white for the first seventy feet and red for the remainder. The red and white day mark would improve sailors' ability to see the tower during the morning and afternoon hours.

7. F. Ross Holland, *A History of the Cape Hatteras Light Station, Cape Hatteras National Seashore, North Carolina.* (NPS, Office of Archeology and Historic Preservation, September 30, 1968), 53.

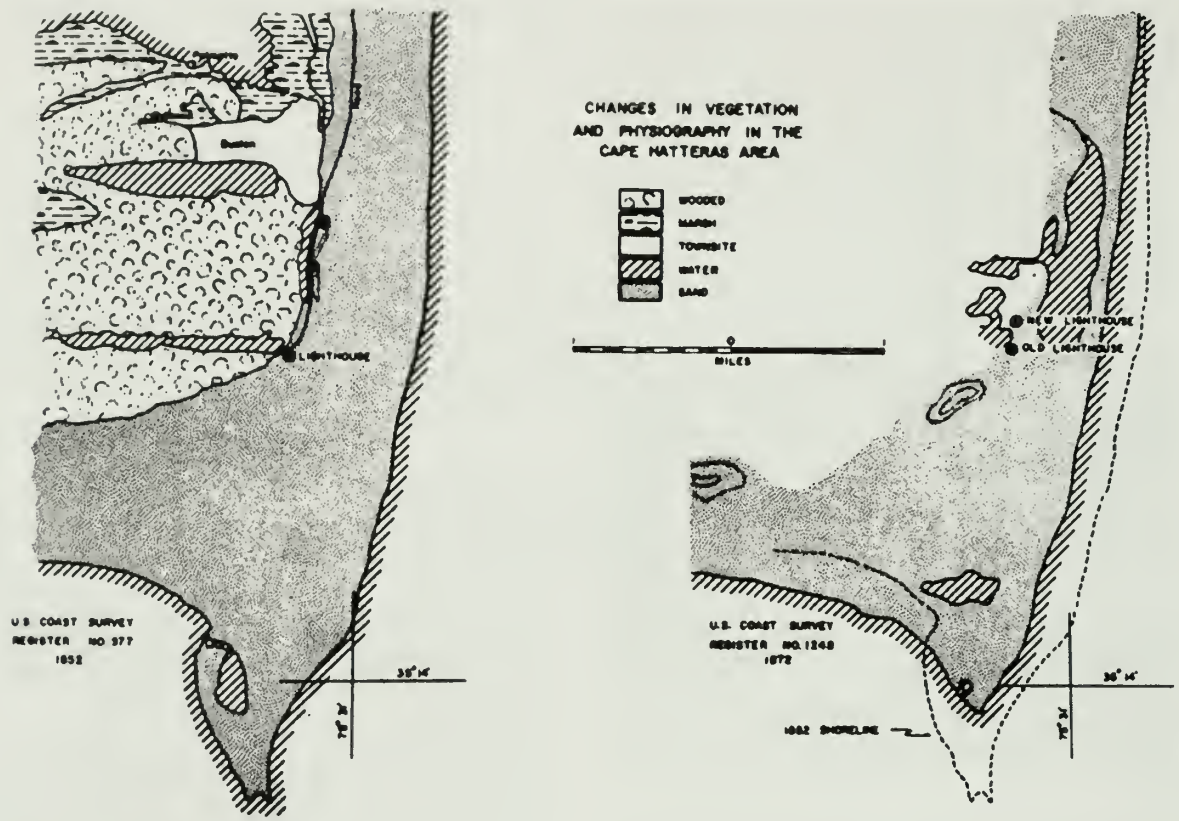

FIGURE 4. Physiographic changes in the Cape Hatteras area, 1852 - 1872.

Oil Vault. Dearborn also built an oil vault near the tower. It was twenty by twelve feet and covered with a shed. Inside, each of the nine cedar cisterns contained one hundred gallons of whale oil.[8] Within a year, the cisterns were considered too small and were replaced with larger ones capable of holding a total of 2000 gallons of oil.[9]

Keeper's House. The first keeper's house was a two-story wood frame dwelling. It stood thirty-four by sixteen feet and was built in 1800. The location is unknown. Dearborn sunk a well "at a convenient Distance" from the house. Unfortunately, this property was not maintained and was in poor condition by 1827.[10] When additional land was purchased in 1828, a new keeper's dwelling was built.[11] Details of the second structure and how long it stood are presently not known.

Double Keepers' Quarters. With additional land available, a larger dwelling was built in 1854. This two-story wooden structure was painted white and contained six rooms to house two, sometimes three, assistant keepers and their families. Two attached kitchens flanked the structure. A double privy, brick cistern, and other storage buildings that appear in later surveys were probably built at this time.

The 1854 survey in figure 2 illustrates the quarters north of the lighthouse and within the forty-acre tract purchased in 1828. Although not shown in the survey, a smokehouse may have been built along with other necessary outbuildings.[12]

8. Holland, 130.
9. Holland, 19.
10. Holland, 130.
11. Holland, 37.
12. Holland, 140. Holland does not cite his source for this information.

Circulation

Water transportation persisted throughout the 19th century with the use of shad boats, Carolina sharpies, canoes, and dugouts. Also, ferry services were provided across the inlets. On land, sandy trails followed high ground from village to village, and by 1865 a dirt road connected Hatteras Inlet with Loggerhead Inlet. Bankers traversed these difficult routes with carts drawn by horses or oxen. The best routes, however, were along the beaches at low tide. Here, horse- or ox-drawn beach carts, or two-wheeled buggies, moved more quickly.

Vegetation

The 1803 light station area was covered in maritime forest.[13] This vegetation disappeared over the course of the century, however, with much of the wood lost to salt spray or cut for shipbuilding. Vegetation losses exposed the landscape to more wind, shifting sand, and salt spray. By 1870, an open windy landscape of sand, beach grass, and shrub thickets existed.

Views

In the early 1800s, the lighthouse was visible from the beach for miles. Interior views within the light station, however, were probably limited. Sight distances improved once trees were removed and existing vegetation died from salt and wind exposure.

Civil War Period

Confederate forts were built on the Outer Banks to protect the ocean trade routes of the South--Fort Oregon at Oregon Inlet near Roanoke Island, Fort Ocracoke near Ocracoke Inlet on Beacon Island, and Forts Hatteras and Clark near Hatteras Inlet on Hatteras Island. The Hatteras forts were located ten miles south of the light station.

Hatteras Inlet, open for only fifteen years before the outbreak of the Civil War, was the deepest and most stable. From there, Confederate privateers raided ships bound for northern ports in the summer of 1861. That same year Confederate soldiers removed the Cape Hatteras lighthouse lantern before Union soldiers took control of the inlet. The Yankees replaced the lantern and were garrisoned at Forts Clarke and Hatteras for the remainder of the warThe Outer Banks - Post-Civil War to Early 20th Century (1866-1935)

13. Holland, 7.

The Outer Banks

Land Use. Approximately 1,000 to 1,500 people lived on Hatteras Island by 1870.[14] Ice, for packing and storing, became widely available at this time and caused commercial fishing to become an important industry.

In the early decades of the 20th century private clubs were established for seasonal hunting of migratory fowl. Pea Island Hunt Club was established as early as 1909. The Phipps family and other wealthy northerners bought land on the South Banks in the 1920s.[15]

Circulation

With sandy trails still unimproved at the turn of the 20th century, travel by boat remained the preferred means of transportation. But the 20th century brought improved transportation options for the island inhabitants. Cars arriving from the mainland in 1919 on private ferries could drive on the beaches.[16] The first hard-surfaced road was built in the 1920s on Roanoke Island. During the same period, a bridge from Roanoke Island to Nags Head was constructed. Shortly thereafter, the Wright Memorial Bridge, built in 1930, connected Point Harbor across the Currituck Sound with Kitty Hawk and Nags Head. In addition, ferries from island to island began running in the 1930s.

Aids to Navigation

The federal government launched two programs in the late 19th century that would battle the problem of inadequate aids to navigation at North Carolina's Outer Banks. The first was to construct a series of lighthouses that would have sufficient power in their beacons and be constructed close

14. Holland, 89.
15. Jim Senter, email correspondence to Doug Stover, CAHA Cultural Resource Specialist, July 2, 2002.
16. Dunbar, 62.

enough that ships could follow one after the other. On Cape Hatteras, three modern brick lighthouses were built--the new Cape Hatteras Lighthouse (1870), the Bodie Island Lighthouse (1872), and the Currituck Lighthouse (1875). Each was given distinct markings for day identification and different sequences of flashing lights and intervals between flashes for night identification.

The second federal program was the construction of life saving stations along the coastline. Permanent crews were hired to save lives. Between Virginia and Cape Lookout twenty-five stations were built. On Hatteras Island were Chicamacomico (1874) and Little Kinnakeet (1874), both located north of the light station.

1870 Cape Hatteras Light Station

Over the period from 1867-1870, Congress appropriated $167,000 for the construction of a new light station. Located 1,600 feet from the shore, the light was put into operation on December 16, 1870.

Boundaries and Station Layout

The 1870 light station was surveyed in 1893 by H. Bamber for the Office of the Lighthouse Boar (fig. 5).

The survey showed the boundaries of the reservation enclosing a square area of approximately 40 acres. How the property holdings changed from forty-four acres to forty acres is not known. Bamber's boundaries are incongruous with the 1854 map in figure 2.

The new light was constructed 600 feet north of the 1803 tower and 370 feet southeast of the double keepers' dwelling. Both keepers' dwellings were oriented slightly east of south and a connecting walk led to the lighthouse. A natural freshwater pond surrounded the two houses on the north, west, and southwest.

Topography/Hydrology

A good description of the new tower location was found in the 1869 Annual Report of the Lighthouse Board:

> The Site selected bear [sic] north by east 600 feet distant from the old tower, and is therefore as near it as well could be. The sailing directions will be very slightly affected if at all. It is on the general level of the beach, and therefore is secure from the destructive action of the wind, which has always so seriously threatened the foundations of the old tower, and to counteract which very heavy expense was incurred through many years. The site is also above the highest level of the sea and so far removed from the water line as to render it safe from encroachment of the sea."[17]

Despite the optimism of this report, the shoreline erosion near the lighthouse was increasing. The 1893 Bamber survey (fig. 5) indicated the water had moved to within approximately 1,300 feet of the new tower. In addition, photographs of the same period show a flat, open sandy beach south and southwest of the tower. In 1919, a low sand ridge, remnant of an old dune line, ran parallel with the shore about 500 feet east of the light. Soon after, the ocean overcame the dunes and washed to within 300 feet of the lighthouse.

Federal efforts to protect the tower began in 1930 when 900 linear feet of interlocking sheetpile groins were installed along the beach by the Lighthouse Service. A few years later, storm-driven water moved within one hundred feet of the structure. In 1933, more steel groins were installed.

Other water features included the freshwater pond that wrapped around the two dwellings on the north and west sides. The water varied in depth but was generally less than two and one-half feet deep. The bottom was hard and occasionally the pond would dry up.

17. "History of Cape Hatteras Light Station, North Carolina." (February 1954), Park Archives. Unpublished Report, n.p.

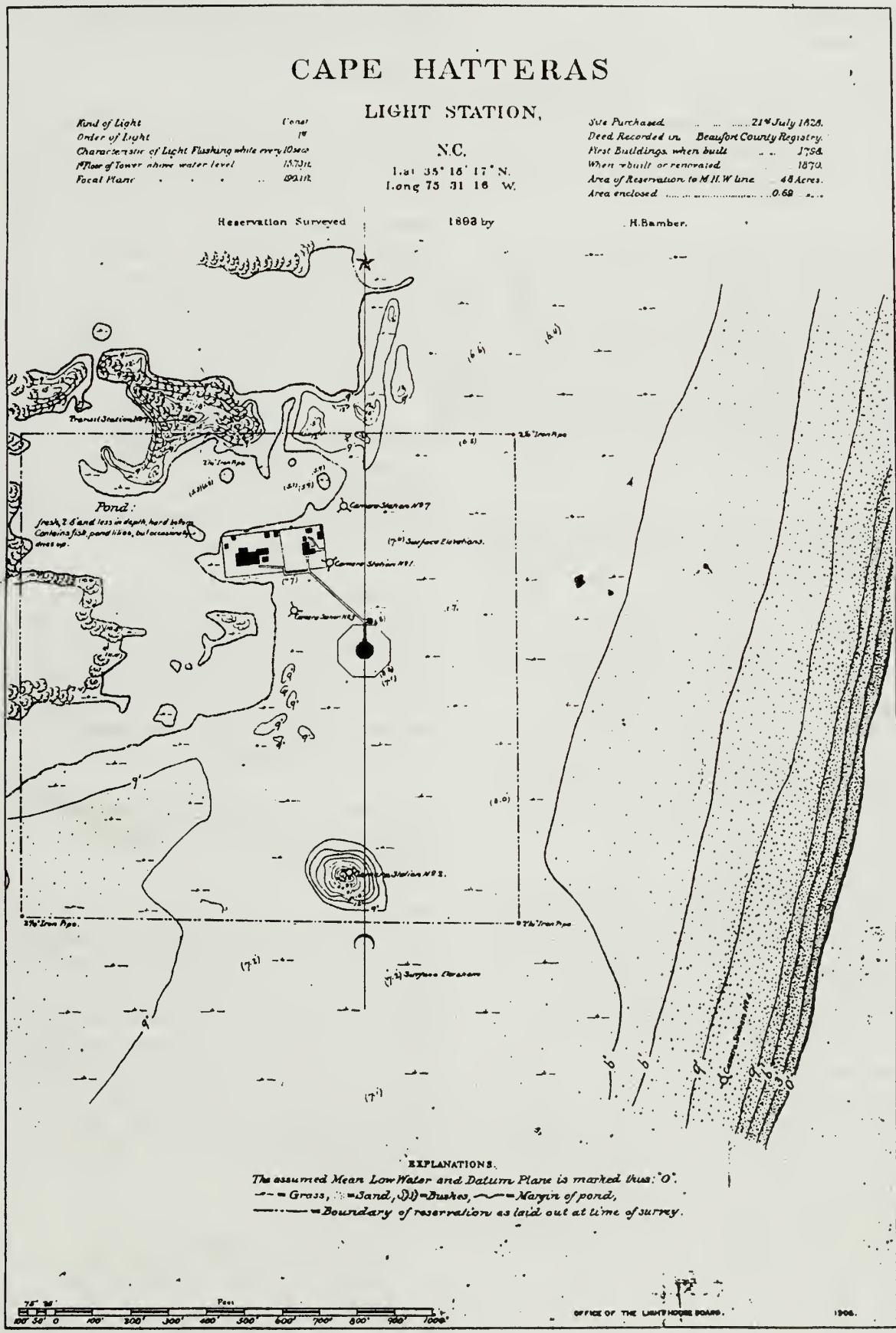
CAPE HATTERAS
LIGHT STATION,
N.C.
Lat 35° 16' 17" N.
Long 75 31 16 W.
Kind of Light
Order of Light
Character or Light Flashing white every 10 secs
1st Floor of Tower above water level
Focal Plane
Site Purchased
Deed Recorded in Beaufort County Registry.
First Buildings when built
When rebuilt or renovated
Area of Reservation to M.H.W. line
Area enclosed
Reservation Surveyed 1893 by H. Bamber.
Pond:
EXPLANATIONS.
The assumed Mean Low Water and Datum Plane is marked thus: "0".
= Grass, = Sand, = Bushes, = Margin of pond,
= Boundary of reservation as laid out at time of survey.
OFFICE OF THE LIGHT HOUSE BOARD.
1906.

FIGURE 5. H. Bamber's 1893 Survey of Station Boundaries and Shore Line.

Structures

1803 Lighthouse. The old lighthouse was destroyed on February 16, 1881, after the new lighthouse was constructed. It was reported to be in danger of collapsing in the next heavy storm. What happened to the tower rubble is not known; however, the ruins of the base remained visible for one hundred years.

1870 Lighthouse. The new lighthouse was built of brick with an octagonal pink granite base. It was 193 feet tall and had a focal plain at 191 feet. A first order flashing lens with pedestal was installed. In 1873 the Lighthouse Board approved the official designation of two black and two white spiraling bands to mark the Cape Hatteras Lighthouse by day. The tower was painted the same year.

Outbuildings near the tower included a small coal bin (1884) and a small wooden fuel shed (ca.1888) that stored empty oil cans.[18]

Temporary structures associated with construction of the light station were located near the tower. They included a seventy-five-by-eighteen-foot cement house, a sixteen-by twenty-three-foot superintendent's quarters, a fifty-by-eighteen-foot men's quarters, and a twelve-by-fourteen-foot kitchen. All structures were removed to Bodie Island when work was completed at Cape Hatteras.

Oil House. A fifteen-by-thirteen-foot brick oil house with a tin roof was built around 1892. It was located 65 feet north of the light tower. Prior to that time, oil was stored in the base of the lighthouse and in the wooden fuel shed. It is not known what happened to the 1803 oil vault.

Double Keepers' Dwelling. In 1892, the double keepers' dwelling was expanded to make more room for the assistant keepers' families. The west facade was extended sixteen feet and a second chimney was added. The flanking kitchen was moved behind the dwelling near the northwest corner. The back porch was also enlarged and enclosed. By 1893 the site also contained a summer kitchen, three storage structures, a cistern, and double privy (fig. 6). All structures were painted white.

A 1916 drawing, commissioned by the Office of the Lighthouse Inspector, Fifth District, in Baltimore, Maryland, proposed removal of the three storage houses. It also recommended replacement of the double privy with a double storage structure and separate single privies.[19] The privies were constructed by 1919 and it appears that the storage structure was erected shortly afterwards. A second cistern on the west side of the house was also constructed by 1920. The single storage unit east of the privies remained.

Principal Keeper's Dwelling. Another dwelling was constructed in 1871 and assigned to the principal keeper and his family. The house was a two-story brick and wood frame structure. It was painted red until around 1933.

A summer kitchen (also painted red), a brick cistern, and privy were also constructed. In 1892, two wooden frame storage buildings were added to the site. One was newly constructed, and the other, built in 1888, was moved from the tower area. Both were painted white and located in the north yard of the dwelling.

By 1916, one of the storehouses had been removed. The cistern, summer kitchen, privy, and one storehouse remained.

Fencing. The 1870 lighthouse was enclosed by a four-foot-high, octagonal, iron, picket fence. The fence was secured with a base of eight rectangular granite stones. Constructed to keep out free-ranging cattle and hogs, the fence remained in place until around 1920 when it was removed. The Bureau of Lighthouses constructed a new fence of white concrete posts and metal railing, approximately three to four feet high. The original granite stones formed the same octagonal base.

18. Holland, 99.

19. 1916 Plat of Cape Hatteras Light Station, November 24, 1916. (Office of the Lighthouse Inspector, Fifth District, Baltimore, MD.) Park Archives.

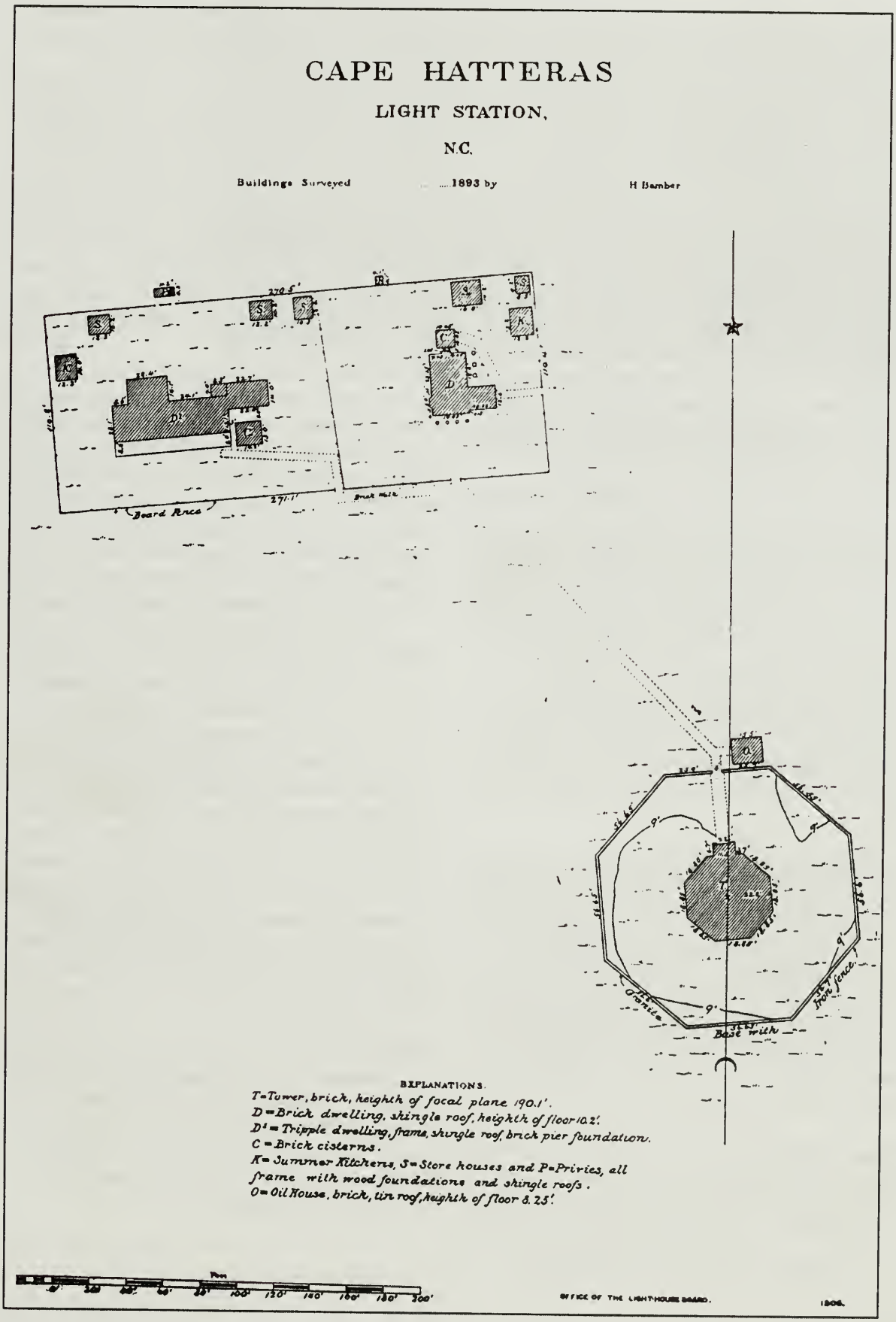
CAPE HATTERAS
LIGHT STATION,
N.C.
Buildings Surveyed .....1893 by H Bamber
Board Fence
Brick Walk
Granite
Iron fence
Base with
EXPLANATIONS.
T=Tower, brick, heighth of focal plane 190.1'.
D=Brick dwelling, shingle roof, heighth of floor 10.2'.
D¹=Tripple dwelling, frame, shingle roof, brick pier foundation.
C=Brick cisterns.
K=Summer Kitchens, S=Store houses and P=Privies, all frame with wood foundations and shingle roofs.
O=Oil House, brick, tin roof, heighth of floor 8.25'.
OFFICE OF THE LIGHT-HOUSE BOARD.
1893.

FIGURE 6. H. Bamber's 1893 Survey of Cape Hatteras Light Station, NC.

The principal keeper's wooden picket fence, constructed in 1870, was replaced in 1888. Although historical sources cite 400 feet of new fence being built, it appears that approximately 900 feet were needed to construct the white board fence that surrounded both dwellings in 1893 photographs.[20] The fence was approximately 110 by 270 feet, with a 110-foot segment dividing the two properties (fig. 6).

Period drawings indicate seven single gates, approximately four feet wide, built in the new fence: a north, east, and south gate at the principal keeper's quarters; a south gate and two north gates at the double keepers' quarters; and a shared gate between the two dwellings. By 1920, the storage unit in the principal keeper's northeast corner had been removed and a double gate, approximately eight feet wide, was added.

The wooden board fence eventually rotted and was replaced with a concrete post and wire fence. This occurred around 1920, possibly at the same time of the tower's new enclosure. Gates were not reconstructed, but double and single openings were left in the new fence where they had originally been located. Additions included a single opening south of the left entrance to the double keepers' quarters, and a new double opening near it on the south side. The single gate between the two quarters was not rebuilt.

Finally, an additional fenced area of approximately one acre was indicated in an 1893 photograph south of the tower. The unpainted wooden board fence contained no animals at the time. This feature was removed by the 1930s. Other fenced areas were found north of the freshwater pond. A circular wooden-paling fence, approximately fifteen feet in diameter, was located on a very small island in the pond. On higher ground further north, three fenced, cultivated fields were sited.

Circulation

Roads. A dirt road, approximately ten feet wide, ran south from Buxton Woods and parallel to the beach. It passed the principal keeper's quarters on the east and continued south to the lighthouse.

Walkways. In 1871, a wooden boardwalk was laid from the double keepers' quarters to the principal keeper's south gate. From there it continued in a straight line to the oil house and light tower. At some point after 1871, it was replaced by a brick walk. A second change in materials occurred by 1893, when period photographs show a five-foot-wide concrete walk replacing the brick. The walk expanded to seven feet in width once it entered the iron fence surrounding the lighthouse.

Concrete walks within the principal keeper's quarters were extant as early as 1893. Maintained with straight clean edges, the south door walkway was five-feet wide and lined with white stones. Another concrete walk, three or four feet wide, went directly from the east door to the single gate at the lighthouse road. A third walk, five feet wide, connected the east door with the cistern. A narrower, possibly three-foot-wide, concrete walk led to the privy in back (north) of the house.

Walks within the double keepers' quarters were also concrete by 1893. Around 1920, new three-foot-wide concrete walks were installed around the double keepers' dwelling. The addition followed the footprint of the house, beginning and ending at the southeast entrance. On the northwest corner of the house, a separate segment turned west toward the summer kitchen. On the north side, another walk led from the rear of the house directly north to the two privies.[21] Finally, to the south, a three-foot-wide, concrete walk from the double keepers' quarters left entrance was extended to a single gate in the new concrete post and wire fence.

Vegetation

Period photographs of the light station showed a dramatically changed landscape since 1803. Remnants of the maritime forests could only be found in the sand ridges northwest of the station beyond the freshwater pond. Gone were the dunes and the vegetation that covered them.

20. Holland, 99. Four hundred feet would have surrounded either dwelling, but not both.

21. 1916 Plat of Cape Hatteras Light Station.

FIGURE 7. 1893 View of Light Station and 1803 Tower Ruins.

The station keepers maintained a well-kept landscape of predominantly exotic grasses. The grounds were mowed regularly, and grasses were clipped around fence posts. None of the structures had foundation plantings.

Scattered forbs and taller grasses grew among small open patches of sand south of the carefully maintained station area. To the east, the beach was barren. Unidentified vegetation, possibly native grasses or cattails, grew along the edges of the freshwater pond.

In 1919, the vegetation was little changed. However, by 1933, wind and over-wash had destroyed the grass immediately south of the lighthouse and a barren sandy beach remained.

Views

Period photographs indicate that the former landscape of old dunes and maritime vegetation had disappeared by 1893. The flat, open, and treeless landscape provided a sweeping 270-degree view of the shore and the land south and west of the lighthouse. Dominating this view was the lighthouse itself towering over all other structures and vegetation (fig. 7). In 1933, this viewshed remained unchanged.

Park Development Period (1935 to 1942)

The Outer Banks

Land Use. Free-ranging cattle were no longer permitted on the barrier islands by the end of the 1930s. The use was incompatible with the extensive re-vegetation project initiated by the Civilian Conservation Corp in 1935.

Commercial fishing and building trades remained the leading occupations through the 1950s. But improved roads impacted the ferry and fishing transport to the mainland. As a result many inhabitants turned to tourism and sport fishing for income.

Circulation. An improved infrastructure made traveling the length of the Outer Bank easier. After World War II, a hard-surfaced road was built from the north banks at Southern Shores to Nags Head. A second two-lane asphalt road (Highway 12) was also built from Oregon Inlet to Hatteras Village by 1952. New bridges included the Croatan Sound (1953) and the Oregon Inlet bridges (1963).

Aids to Navigation

Congress abolished the Lighthouse Board in 1910 and replaced it with the Bureau of Lighthouses, under the Commerce Department. The number of lighthouses throughout the nation at that time had increased to 1,462.

In 1915, the U. S. Coast Guard was created under the U. S. Department of the Treasury. Later, in 1939, Franklin Roosevelt returned the Bureau of Lighthouses to the Department of the Treasury, to be administered by the Coast Guard.

The New Deal

President Roosevelt's national "back to work" policies of the New Deal included the development of recreational facilities for the American people. Given the responsibility to design and develop state and national parks throughout the nation, the NPS worked closely with state agencies to carry out their task. In North Carolina, the Department of Conservation and Development helped coordinate the work of approximately 12,000 men in sixty-one CCC and WPA camps throughout the state.

Cape Hatteras State Park and the CCC

Cape Hatteras State Park, or Phipps Memorial State Park, was originally owned by the John Phipps and Henry Phipps families. The date of inception is not known, nor has information been located to indicate the type of facilities present. The state park included approximately 1,400 acres and surrounded the Cape Hatteras Light Station to the north, west, and south (fig. 8).

CCC and WPA workers were brought to the Outer Banks to protect the shore and revitalize the natural vegetation of the islands.[22] A CCC camp, variously known as SP-6, NP-1, the "Buxton Camp" and the "Beach Camp," opened in September 1935 to build artificial dunes in the Cape Hatteras State Park. It was located one-half mile southwest of the lighthouse and housed 200 young men.[23]

Cape Hatteras National Seashore

In 1936, the Department of Commerce ceded the forty-four-acre light station property to the National Park Service. The following year, the NPS undertook a recreation study of the Outer Banks. The report inventoried regional recreational needs by analyzing existing and potential park and recreation areas.[24]

On August 17, 1937, Congress authorized legislation establishing the Cape Hatteras National Seashore, the nation's first national seashore. It specified a minimum of 10,000 acres "including the existing Cape Hatteras State Park." Park development policies emphasized recreational use and the avoidance of conflicts with the interests of wildlife. Fishing by village residents would be allowed within the park boundaries.

The park was re-designated Cape Hatteras National Seashore Recreational Area on June 29, 1940. The legislation specifically permitted bird hunting within the park boundaries. This sport was restricted to designated areas of the park.

Topography/Hydrology

CCC efforts to save the lighthouse resulted in the construction of a series of wooden revetments and sand fences to check erosion (fig. 9). Sand fences constructed both in front of and behind the lighthouse lowered wind velocity and allowed dunes to form. By 1937, the dunes had reached "considerable height." Shoreline erosion eased somewhat afterward, but the ocean was only 600 feet from the tower.

In total, 115 miles of Outer Banks beach was protected with 600 miles of log and brush fences. By 1940, artificial dunes extended the length of the Outer Banks from the Virginia line to Ocracoke Inlet.

Additional changes occurred in the early 1940s, when the NPS filled a section of the light station's freshwater pond. The shallow section directly behind the principal keeper's quarters was filled, apparently, to install a new drain field. Fill was also added to the low-lying area south of the dwellings to eliminate standing water.

22. Torres, 153.
23. Ben Dixon MacNeill, "Nature in Its Own Way Works Miracle Where Engineers Failed," *The News and Observer* (Raleigh, NC), November 28, 1937, sec. M, 1.
24. Linda Flint McClelland, *Building the National Parks.* (Baltimore: The Johns Hopkins University Press, 1998), 339.

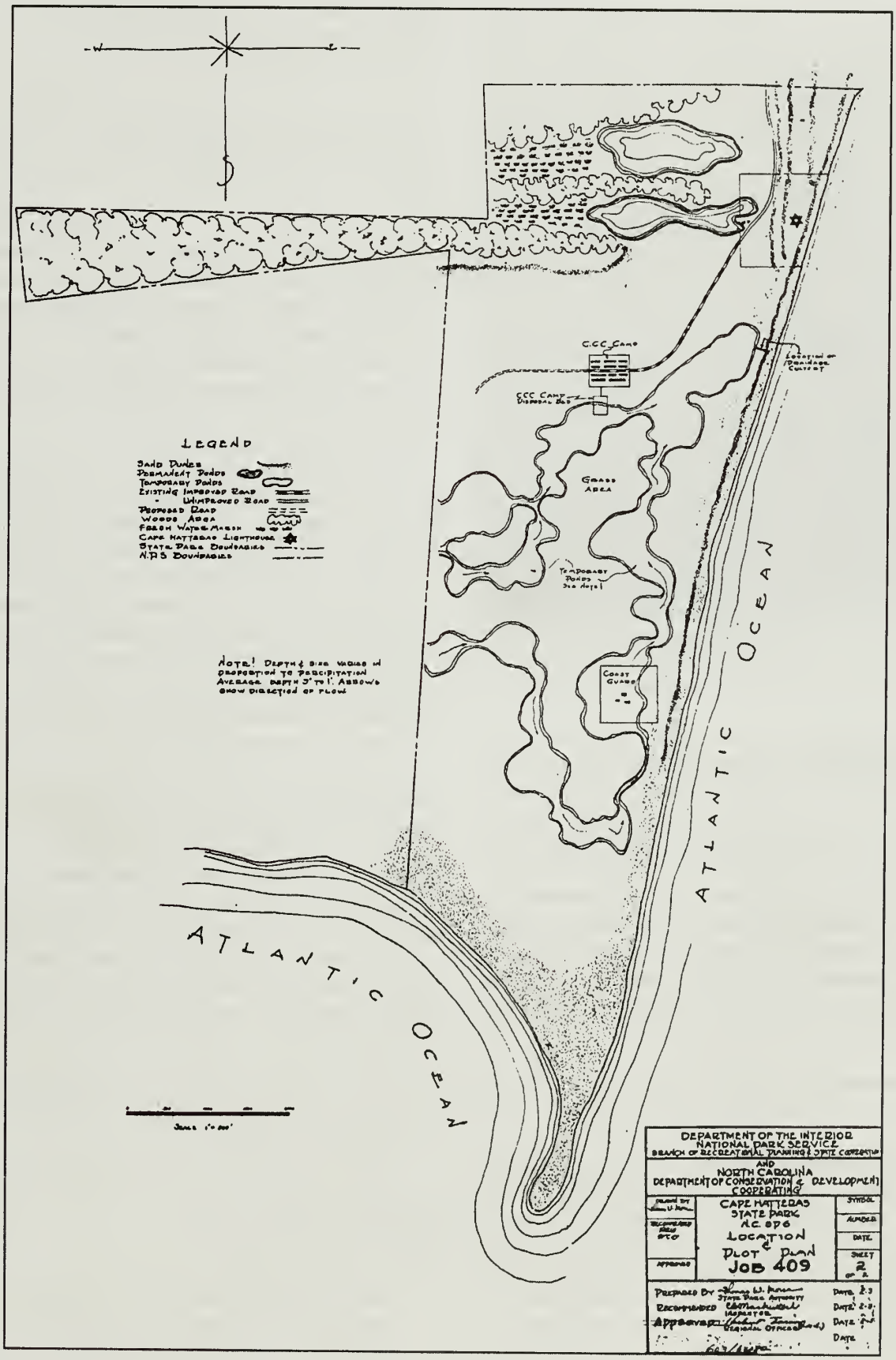

FIGURE 8. Cape Hatteras State Park, N.C. SP-6, 1937 Location and Plot Plan.

FIGURE 9. North view of Lighthouse and CCC brush fences and grass plantings. Lighthouse revetments can be seen along the beach, ca. 1935.

Structures

1803 Lighthouse. The 1803 Cape Hatteras Lighthouse ruins were still present at this time.

1870 Lighthouse. The Coast Guard abandoned the lighthouse in 1935, after building a new light one mile inland. When CCC efforts appeared to slow the shore erosion, the NPS granted the Coast Guard permission to use the 1870 tower as a lookout station in 1942. The Coast Guard occupied the lighthouse for three years and the permit was cancelled in 1947.

Oil House. The oil house was used as a visitor contact station in 1940.

Double Keepers' Quarters. The double keepers' quarters was occupied by CCC workers assigned to the state park in 1935. They most likely stayed there until the CCC camp barracks were constructed. The dwelling underwent repairs in 1937 and running water and electricity were installed. In addition, the entire exterior was repainted white. The double storage unit (ca. 1920) in the north yard was used to store construction materials.

A septic system was added around 1940 and the single-hole privies were removed. No outbuildings except the cisterns were extant by this time.

The Principal Keeper's Quarters. CCC workers stayed in the principal keeper's quarters briefly in 1935 until accommodations were built in the camp one-half mile away. In 1937 the dwelling underwent interior and exterior repairs. The house was painted white and running water and electricity were installed. In 1938, a septic system and disposal field were constructed.

Outbuildings were removed as they deteriorated. The summer kitchen, remaining storage building, and privy were gone by 1937. Two new structures (ca. 1940) appeared in the principal keeper's north yard—one near the northwest corner of the house and the other near the pond. A 1938 pump house, with a 1,500-gallon pressure tank to serve both dwellings, was probably housed in one of these structures. A "power house" mentioned in a 1938 plan could have occupied the other.

The CCC Camp. The SP-6 Beach Camp in 1937 consisted of approximately twenty structures one-half mile southwest of the Cape Hatteras Light Station. In addition to barracks were a garage, oil house, tool house, office building, water tank, workshop, incinerator, education building, latrine, and flagpole.[25] Tennis courts were also built in the center of the camp. All structures were removed in 1942 when the camp was closed.

West of the camp, the CCC built five one-story frame houses. They were designed by the NPS and completed in 1939-40.

Fencing. No changes to the station's fencing were made during this time.

25. E.J. Byrum, Monthly Narrative Progress Report for December & January 1936-37, Cape Hatteras State Park. Park Archives; Cape Hatteras State Park, NC SP6 Location and Plot Plan. Park Archives.

Utility Lines. Utility lines on wooden posts were erected along the old lighthouse road in the early 1930s. Period photographs indicate the line ran on the shore side (east) of the road and continued south to Cape Point, via the CCC camp. A second row of utility lines on the west side of the old lighthouse road appeared in the late 1940s.

Circulation

Roads. The old lighthouse road was extended south in 1935 about one-half mile to the CCC camp. From there it continued west and then south to the point of Cape Hatteras. All roads leading to the light station were narrow sandy trails that were difficult to traverse.

A circular dirt road in the Light Station was built that allowed one to drive from the principal keeper's quarters to the double keepers' house and back around to the light tower. This was installed sometime between 1937 and 1945. A smaller access drive to the north or rear of the dwellings came across the filled area of the pond from the lighthouse road. It terminated near one of the outbuildings constructed in the 1940s.

The CCC maintained eight miles of dirt roads in the state park. Debris and overhanging branches were removed from the roads. In 1937 The CCC "improved" at least three miles of road leading to the camp. Utilizing local materials, the workers removed soil containing half-oxidized humus from the wet sand flats, mixed it with sand and placed it at a depth of nine inches in the roadbed. The mixture was raked smooth and then covered with one and one-half inch of sand. The work resulted in a firmer foundation that "greatly eliminated tremendous strain on trucks, and . . . offered valuable information in constructing permanent roads, cheaply built, and from native material."[26]

The camp road from the lighthouse split at the northeastern edge of the camp. One section ran east-west across the northern third of the camp while the other skirted the edge of the eastern and southern boundary. These roads met on the west side of the camp and continued to the NPS cabins and to Cape Hatteras.

Aerial photos showed a grid formation of dirt roads within the camp. A broad avenue, part of the camp road, with a planted median ran through the northern section of camp.

Parking. Parking occurred informally at the light station in the 1930s and 1940s. No parking area was constructed at this time.

Walkways. No changes were made to the walkways during this time.

Trails. A dirt trail, approximately five feet wide, from the lighthouse to the beach was opened across the dune by 1945.

Vegetation

Lighthouse. Two series of brush fences ran parallel to the beach along each side of the lighthouse. Grasses planted on the dunes quickly established themselves. American beach grass and sea oats surrounded the tower, keeping the sand from blowing away.

Lighthouse Keepers' Quarters. The vegetation within the fenced area of both quarters consisted of exotic grasses that were mowed regularly. No foundation plantings existed. Beyond the fences, however, grew native grasses and shrubs.

CCC Revegetation Project. When the CCC left the Outer Banks in 1942, native grasses planted on the dunes totaled an area of 142 million square feet. Behind the dunes, 2.5 million tree seedlings and shrubs were planted.

At Cape Hatteras State Park, CCC workers installed four miles of brush fences. Native grasses planted on twenty-two acres of dunes took root and began collecting sand. Approximately 18,000 shrubs and trees, including yaupon, American beauty bush *(Callicarpa americana)*, loblolly pine *(Pinus taeda)*, redbay, live oak, and wax myrtle were planted on nearby sand flats (fig. 10).[27]

26. Byrum, n.p.

27. Byrum, n.p.

FIGURE 10. CCC grass planting, ca. 1935.

CCC Nursery. CCC workers installed five nursery areas in the southern part of the camp. Raised beds were grouped and surrounded by picket fences. Seed collected from Buxton Woods was planted in defined beds, and later transplanted as seedlings to another part of the nursery.[28] In 1937, beds totaled 19,014 square feet. The camp had 7,910 square feet of one-year-old seedlings, 4,740 square feet of willow cuttings, and 6,639 square feet of transplant beds. Trees and shrubs included red bay, wax myrtle, persimmon *(Diospyros virginiana)*, live oak, loblolly pine, prickly ash *(Zanthoxylum americanum)*, yaupon, American holly *(Ilex opaca)*, willow *(Salix sp.)*, and eastern red cedar. One-year-old seedlings were removed to "protective grasses" or to the transplant beds.[29]

CCC Camp. Little is known about plantings in the area of the camp structures. Period photographs show grasses planted between buildings to hold shifting sands. Aerial photographs suggest more formal plantings along the main camp road median.

Freshwater Pond. Increased amounts of vegetation inside the pond indicated lowered water levels north of the double keepers' dwelling. The western part was still deep enough to restrict vegetation to the pond edges.

Vicinity. The artificial dunes created a barrier to salt spray, over-wash, and wind to areas west of the lighthouse. Shrubs and heavy grasses grew on the leeward sides of dunes. Beyond them in the sand flats, an open shrub thicket of wax myrtle, yaupon, spartina, and marsh elder began to grow. The landscape was still dotted with open sand in areas of higher elevation where moisture was a limiting factor.

Fenced areas north of the pond were no longer in cultivation. Successional processes resumed as shrubs and grasses were mixed with trees.

Views

The artificial dunes blocked views of the ocean from the light station. Instead of a sweeping vista of the sea, one had long views of low-growing shrubs on the salt flats west and south of the tower. To the east, the line of dunes stretched north and south along the beach. One had to climb the dunes or the light tower in order to see the ocean.

Mission 66 (1955-1966)

Cape Hatteras National Seashore Recreation Area was renamed Cape Hatteras National Seashore in 1953. By that time the park had acquired approximately 28,000 acres. Administration headquarters and a park visitor center were established at Bodie Island.

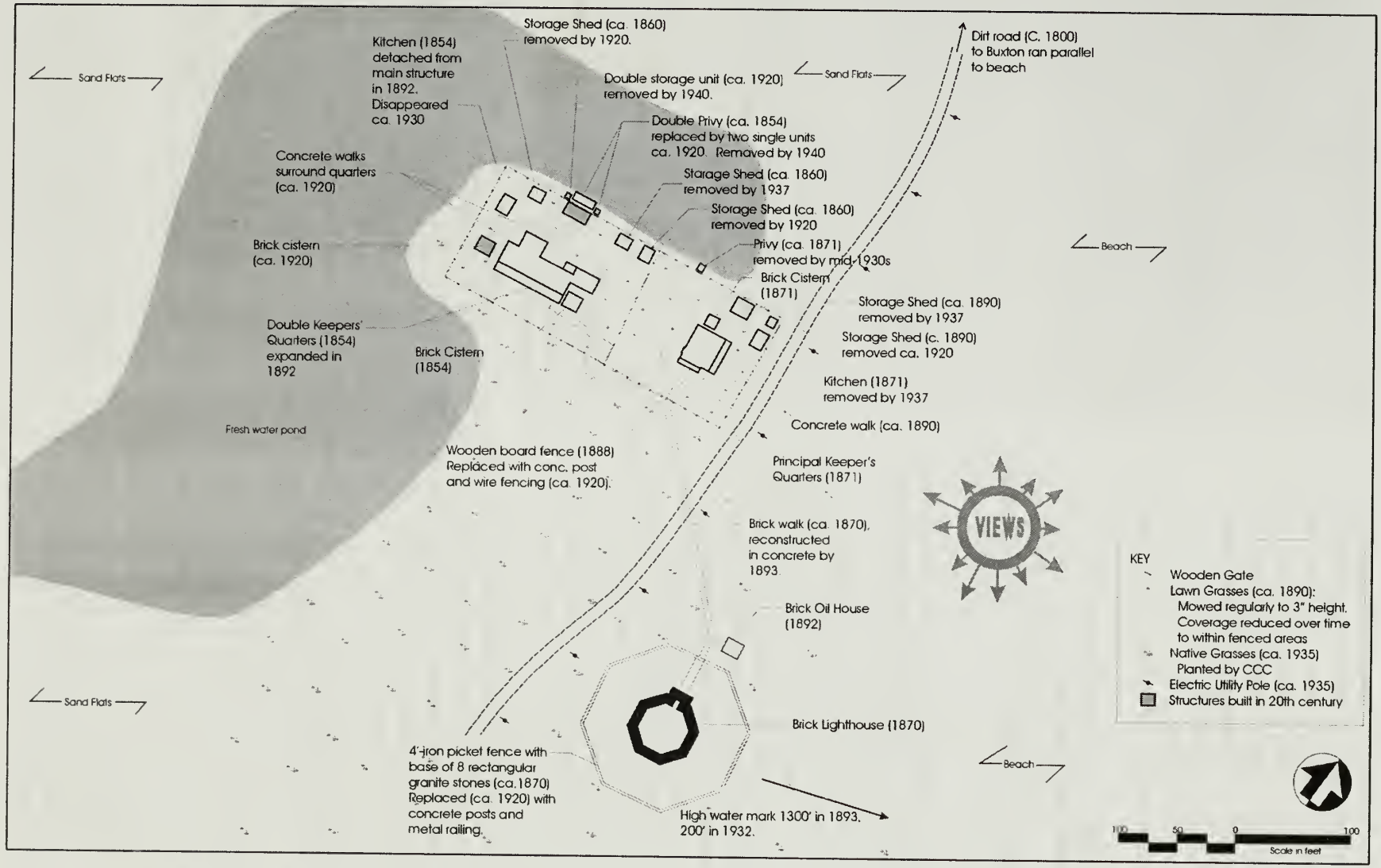
Storage Shed (ca. 1860) removed by 1920.
Kitchen (1854) detached from main structure in 1892. Disappeared ca. 1930
Sand Flats
Double storage unit (ca. 1920) removed by 1940.
Sand Flats
Dirt road (C. 1800) to Buxton ran parallel to beach
Double Privy (ca. 1854) replaced by two single units ca. 1920. Removed by 1940
Concrete walks surround quarters (ca. 1920)
Storage Shed (ca. 1860) removed by 1937
Storage Shed (ca. 1860) removed by 1920
Brick cistern (ca. 1920)
Privy (ca. 1871) removed by mid-1930s
Beach
Brick Cistern (1871)
Storage Shed (ca. 1890) removed by 1937
Double Keepers' Quarters (1854) expanded in 1892
Brick Cistern (1854)
Storage Shed (c. 1890) removed ca. 1920
Kitchen (1871) removed by 1937
Fresh water pond
Concrete walk (ca. 1890)
Wooden board fence (1888) Replaced with conc. post and wire fencing (ca. 1920).
Principal Keeper's Quarters (1871)
VIEWS
Brick walk (ca. 1870), reconstructed in concrete by 1893.
KEY
Wooden Gate
Lawn Grasses (ca. 1890): Mowed regularly to 3" height. Coverage reduced over time to within fenced areas
Native Grasses (ca. 1935) Planted by CCC
Electric Utility Pole (ca. 1935)
Structures built in 20th century
Brick Oil House (1892)
Sand Flats
Brick Lighthouse (1870)
4'-iron picket fence with base of 8 rectangular granite stones (ca.1870) Replaced (ca. 1920) with concrete posts and metal railing.
Beach
High water mark 1300' in 1893. 200' in 1932.
100 50 0 100
Scale in feet

FIGURE 11. Cape Hatteras Light Station Historic Period (1870-1936).

The NPS Mission 66 initiative grew out of the service's obligation to meet the increasing demands for recreational activity in the nation's parks. It was a ten-year plan in preparation for the NPS's 50th anniversary in 1966. For Cape Hatteras National Seashore, five management priorities were established:

1) Control beach erosion above all improvements.

2) Contain dune breaches where over-wash had denuded areas of vegetation.

3) Rehabilitate the CCC dune system and maintain it perpetually.

4) Provide adequate roads, walkways, trails, and parking to overlooks, beaches, ponds, and forests.

5) Avoid heavy concentrations of people in any one area.[30]

The park's *1966 Master Plan* emphasized the protection of Cape Hatteras resources from development. Most of the plan focused on natural resources and the protection and rehabilitation of the artificial dunes. Proposed were the continuation of erosion studies and beach re-nourishment projects. The plan urged dune protection by restricting foot traffic and improving methods of dune stabilization. The continuation of grass nurseries as a source of dune vegetation was also suggested, as well as expanding them to include shrub and tree seedlings. In the document's land classification map, fifty acres of the park were classified historic, including the light station.

Topography/Hydrology

The Mission 66 priority to repair the dune system illustrated the unstoppable changes in the shoreline. The dune system had started to fail. Although it had prevented over-wash during small storms, overall erosion was narrowing the beaches. A reduced area of "run up" for waves increased turbulence and sand broken into finer particles would wash away. This created a steeper beach profile that magnified wave turbulence.

FIGURE 12. Sandbagging efforts in 1968 to protect the lighthouse.

A 1958 aerial shows Hatteras Island beaches narrowing and dunes destroyed by wave over-wash and breaching. The Ash Wednesday Storm, in March 1962, caused considerable damage when the island itself was breached and a new inlet opened north of Buxton. In 1966, the NPS renourished the beach immediately north of the light station with 312,000 cubic yards of sand.

Structures

1803 Lighthouse Ruins. The old lighthouse ruins were extant during this period.

1870 Lighthouse. In 1948, the NPS granted the Coast Guard a second permit to use the tower as a lighthouse. Use of the oil house was also granted. A working light was moved back into the structure, and visitors were allowed inside as high as the balcony.

Double Keepers' Quarters. Beginning as early as 1947, the double keepers' quarters was operated under a concessions contract for public accommodation.[31] As early as 1955 the double keepers' quarters was adapted to house the park's

28. MacNeill, p. 2.
29. Byrum, n.p.
30. Mission 66 for Cape Hatteras National Seashore Recreational Area. Unpublished NPS report, 1-7. Park Archives.
31. "Report on Sanitary Facilities at the Cape Hatteras Lighthouse Area," April 23, 1947; and letter from Elbert Cox, Assoc. Regional Director, NPS, to Percy Williams, Avon, NC, 1948. As cited in General History. Unpublished report. Park Archives.

Museum of the Sea and a visitor center. The park installed a metal flagpole south of the structure, the first such structure on the site.

Principal Keeper's Quarters. The principal keeper's quarters also accommodated visitors overnight from as early as 1947 under a concessions contract. It became a ranger station in 1953. From 1968 to 1980, it was used for VIP, or guest, accommodations.[32]

Only one of the two ca. 1940 outbuildings was extant by 1958. This structure, located at the end of the staff access road and north of the dwelling, may have been moved. It was used as a garage or maintenance building.

CCC Camp. All structures of the camp were removed in 1942. Foundation locations were visible in 1952 and 1958 aerial photographs.

Fencing. In the 1950s, the fences surrounding the lighthouse and both keepers' quarters were removed. Remaining at the tower were the eight granite stones that formed the octagonal base.

Circulation

Roads. Within the light station, the circular dirt road was obliterated and planted with lawn grasses by 1952. A pull-off for parking cars was positioned at the base of the lighthouse.

A complete overhaul of circulation patterns resulted from Mission 66 planning to improve access to the lighthouse. Perhaps the catalyst was the new naval station construction adjacent to the NPS boundary north of the light that obliterated a section of the old lighthouse road. In response, the NPS proposed a two-lane, asphalt entrance road from Highway 12 at Buxton Woods, about one-half mile west of the old lighthouse road junction. The new road, known as the Park Access Road, traveled due south, then curved east toward the light station. Here, a four-way stop intersection provided choices to the visitor. A left turn traveled northeast to the light station. If one continued straight, the road name changed to Cape Point Road, which realigned with the old lighthouse trace. It traveled south and parallel to the CCC dunes for about two miles to Cape Point. If one turned left at the intersection the road ran west to the CCC cabins, then turned south towards Cape Point. These roads appeared in a 1956 drawing and were constructed by 1958. None of the routes was curbed.

The old lighthouse road remained visible during this period. The NPS allowed the road to gradually disappear under scattered successional grasses and forbs.

Also built was an uncurbed asphalt service road from the lighthouse visitor parking area. The two-lane road ran north beside the freshwater pond to the northwest side of the double keepers' quarters, then turned east to the principal keeper's quarters where it terminated at a maintenance garage. This road replaced an earlier access from the lighthouse road across the north yard of the principal keeper's quarters.

Other changes affected the CCC camp road, which, at the time, was still discernible. A 1955 Development Plan proposed its obliteration and the road was left to be covered by natural successional processes.

Parking. Proposed in the 1966 *Master Plan*, two connecting parking areas, juxtaposed in a "butterfly" style design, were installed around 1958 directly south of the double keepers' quarters. Accommodating approximately sixty vehicles, the asphalt parking area was striped but uncurbed. Staff parking was assigned in the north yard of both keepers' quarters. Here, an unstriped, uncurbed parking area near the maintenance garage was sited to accommodate approximately ten vehicles.

Two additional parking areas located outside the light station were installed along Cape Point Road. The bathers parking area (approximately fifty vehicles) was constructed about one-half mile south of the tower. Another was installed adjacent to a walking trail one-half mile southeast

32. Archie W. Franzen, Historic Structures Report, Part I, Architectural Data Section on Light Tender's Quarters, Cape Hatteras National Seashore. (Washington D.C.: NPS, 1968), n.p.

of the station (about thirty cars). These parking areas were striped but not curbed.

Walkways. A wooden boardwalk was added, ca. 1950, from the lighthouse to the double keepers' quarters. The walk bypassed the principal keeper's quarters which, at the time, was used for ranger housing.

When the butterfly parking area was installed, ca. 1960, however, historic circulation patterns were removed and new ones introduced. The NPS removed the east and south walks of the principal keeper's quarters (ca. 1890), the east and west walks of the double keepers' quarters (ca. 1920), and the walk between the two structures (ca. 1870). Two six-foot-wide concrete walks were installed between the parking area and the double keepers' quarters, and from the double keepers' quarters to the lighthouse.

A three-foot-wide concrete walk from the lighthouse to the 1803 ruins provided visitors a view of the ocean and area surrounding the station. Continuing one-half mile south, the trail (possibly sand at this point) ran along the top of the dunes to the bathers parking area. Also built near the lighthouse was a five-foot-wide boardwalk over the dunes providing access to the beach.

Vegetation

Little change in vegetation occurred during this period. Dunes near the lighthouse remained covered with grasses planted by the CCC (fig. 13). Around the two keepers' quarters and parking area exotic lawn grasses were mowed during the summer. A healthy specimen of yucca *(Yucca sp.)* grew at the principal keeper's south foundation beside the porch in 1968. No other foundation plantings existed at that time.

The freshwater pond continued to vary its plant composition depending on the water level. Photographs from the 1950s and 1960s indicate a shallow period when large sections of the pond appear filled with vegetation.

FIGURE 13. CCC grasses surrounding lighthouse, ca. 1950.

At the light station, artificial dunes sustained conditions suitable for shrub thickets of yaupon, wax myrtle, and cedar. Species in sand flats and ridges of higher elevations covered 80 or 90 percent of the land area. Trees, such as pine and live oak, took root as the protection from salt spray and wind was reduced. Areas of the CCC camp slowly succumbed to shrubs, pines, and oaks.

Views

By the 1960s, light station views were still affected by successional processes. Grasses and forbs tolerant of salt spray covered the dunes completely. No view of the ocean could be seen except from atop a dune or from the lighthouse. To the south and west, low shrubs covered the flat topography.

To the north, a modern intrusion was constructed in the viewshed. In the mid-1950s, the NPS issued a special use permit to the U.S. Navy for fifty acres north of the principal keeper's quarters. The facility the Navy constructed consisted of low

concrete-block buildings, storage tanks, and utility poles visible from anywhere in the light station. In 1981, the Navy vacated the premises and use of the property was transferred to the U.S. Coast Guard.

1984 General Management Plan

By 1978, the NPS realized the futility of attempting to stabilize the shore. It moved to evaluate existing control measures and to make an "informed decision" that would protect the site's cultural resources.[33] Public concern grew stronger after a March 1980 storm that again threatened the lighthouse. The Secretary of the Interior called for the Corps of Engineers (COE) to develop a long-range plan to save the structure.

In 1982, the COE recommended encircling the lighthouse with a seawall and revetments and relocating the two keepers' quarters to safer ground. Over time, the report added, ocean waters would surround the lighthouse as the shoreline moved westward. Other alternatives considered were 1) relocation of the lighthouse, 2) installation of offshore breakwaters, and 3) construction of additional groins.

Management Objectives

Despite the COE's recommendation, the *1984 General Management Plan (1984 GMP)* recommended the lighthouse's fate be determined in a separate decision process. GMP management objectives reiterated the park's commitment to protecting historic resources, but also realized the futility of fighting a moving shoreline. The GMP identified four objectives:

1) The future development of the lighthouse complex was to be dependent upon the permanent method of protection.

2) The park would be committed to identifying and preserving the cultural resources of the Outer Banks, particularly those relating man's adaptation to life at the ocean's edge.

3) The park would cooperate with the Chicamacomico Historical Association and other local and civic organizations to preserve the unique cultural traditions and historic structures of the Outer Banks.

4) Natural processes would be allowed to occur by halting future stabilization measures.

Three exceptions to the last objective were listed in the GMP - Highway 12, Ocracoke Village, and the Cape Hatteras Lighthouse. Protection of the tower would be guided by the chosen permanent method. The Coast Guard and NPS agreed to maintain the three existing groins along the nearby shore. Elsewhere, control measures would be based on shoreline processes, the threat to the resource, the significance of the resource, and alternative costs.

The GMP designated the light station complex a Historic Zone, which precluded any modern development in the site. This selection also committed the park to preserving the historic and archeological resources of the light station in perpetuity.

Topography/Hydrology

Shoreline Erosion. Storm surges and shoreline erosion highlighted the imminent threat facing the Cape Hatteras Lighthouse. Protective measures taken in 1970 included three concrete and steel sheet pile groins built by the Naval Station. The southernmost groin was one hundred feet south of the lighthouse. Despite this, beaches north of the complex continued to erode. Renourishment projects occurred in 1971 and 1972.

The Lincoln Birthday storm, a 1973 northeaster, damaged the shores near the light station. Overwash occurred around houses one mile north. To the south, wave action destroyed a one-half-mile segment of the Cape Point Road. The bathers

33. *Status Report, Seashore Management Strategy, Cape Hatteras National Seashore/North Carolina.* (NPS, 1978), 21-22.

parking area and nearby dune system were also washed away.

A second northeaster in March 1980 moved the waters to within seventy feet of the tower and washed away the 1803 lighthouse ruins. For short-term protection, the southernmost groin was extended 150 feet landward and additional sandbag revetments were placed at the south base of the tower. The following year, in 1981, the groin was extended another 150 feet landward. This seemed to help temporarily as sand accumulated near the lighthouse; however, 1986 estimates of shoreline erosion expected losses of six to twelve feet per year. In 1988 the lighthouse stood only 180 feet from the water's edge.[34]

Flooding. Inland, the mean freshwater table rose with the mean sea level. Landward drainage from the dunes to the pond also contributed to the rise. When shifting sands accumulated underneath the dwellings, moisture was brought to the first-floor structural system. These sands were removed in 1986, but the problem persisted. Standing water near and under the dwellings also occurred many times in the 1980s, and resulted in damage to the brick pier foundation systems of the dwellings.[35]

The once twenty-five-foot-high CCC dunes now stood at fifteen feet, and the light station's dune system was beginning to fail. Wave action undercut the dunes causing them to crumble into the sea. By 1987, no dunes existed immediately south of the tower.

Freshwater Pond. In the early 1970s, the pond was dredged and fill was used to redefine the edges. A deeper "kidney-shaped" water feature emerged with cattails and other vegetation limited to the smooth, shallow edges.

Structures

1803 Lighthouse. In 1974, the old lighthouse was perched on the edge of the beach. It eroded into the sea during the 1980 northeaster.

34. Paul C. Swartz, *Report on the Preparation of the Comprehensive Design Keepers Quarters Landscape Plan for Lighthouse, Cape Hatteras National Seashore*. (Atlanta: NPS, Southeast Region, 1986).
35. Ibid.

1870 Lighthouse. The lighthouse was still operated by the Coast Guard in 1986. No visible change to the structure was recorded.

Oil House. The oil house contained the auxiliary generator for the light beacon. No visible change to the structure was recorded.

Double Keepers' Quarters. The park's Museum of the Sea and visitor center remained in the double keepers' quarters. The *1984 GMP* proposed improvements to the dwelling that included areas for storage, sales, and public restrooms. The plan called for relocation of the structure if it was threatened by the eroding beach line.

Principal Keeper's Quarters. -The principal keeper's quarters was used for VIP housing in 1980. The *1984 GMP* proposed it become a "house museum." It, too, was slated for relocation if threatened.

Fencing. The eight granite stones, part of the first lighthouse fence (ca. 1870), still encircled the tower in 1987. No fencing was proposed. However, the *1984 GMP* recommended reconstruction of a 370-foot, four-foot-high wood fence of three rails around the south and east sides of the two keepers' dwellings. This fence was not built.

Other Structures. The *1984 GMP* also proposed the construction of shower and toilet facilities immediately south of the lighthouse for beach users.

Circulation

Roads. Cape Point Road was relocated inland after being washed out in the Lincoln Birthday storm of 1973. The old site staff road along the rear of the dwellings was widened by 1987 to accommodate parallel parking on both sides.

Parking. Additional parking was added to the light station complex in 1974. A rectangular parking area for approximately fifty vehicles adjoined the existing butterfly parking on the south and east sides. The *1984 GMP* proposed retaining both parking areas for the two keepers'

quarters and museum if the lighthouse remained in place. A separate parking area for bathers was recommended, although the location was not indicated. If the light was relocated, the plan suggested utilizing the existing parking for bathers and constructing new parking near the new lighthouse site.

Walkways. The connecting walk between both houses was not replaced. The 1960s six-foot-wide concrete walkways from the lighthouse to the double keepers' quarters and from the lighthouse to the butterfly parking area were extant. A third walk, from the double keepers' quarters to the parking area, was added around 1988.

The *1984 GMP* recognized the need to protect what remained of the artificial dune system along the shore. It recommended the use of boardwalks where appropriate to minimize erosion and the disturbance of wetlands. Boardwalks were installed within the light station around 1989. A four-foot-wide boardwalk, constructed next to the oil house, crossed over a nearby dune to give visitors access to the beach. Another boardwalk connected the parking area to the beach about 200 feet south of the tower.

The three-foot-wide concrete walk that led to the 1803 lighthouse ruins was washed away during the 1980 storm. However, two sandy paths from the parking area led to the beach about 400 feet south of the lighthouse by 1989.

Vegetation

The *1984 GMP* recommended only indigenous plant material for landscaping within the park. It prohibited climbing or driving on dunes except in designated places. This attempt to protect the remaining vestiges of the artificial dune system was tempered by the knowledge that eventual loss would change the existing landscape.

The park continued to mow light station grasses in the summer growing season, and no foundation plantings were present. Vegetation cover of the surrounding area increased to the point where small trees, such as pine, live oak, and cedar, took root among the protective shrubs of wax myrtle, yaupon, and red bay.

Views

The new park access road provided a controlled view of the light tower as visitors left Highway 12. Initially, the growth of shrubs and trees impeded any sight of the tower and focused the viewer on the immediate foreground. A long sweeping curve then gave way to a distant view of the lighthouse rising above the surrounding vegetation. The lighthouse remained visible above the trees until arrival at the station and the entire station was revealed.

From the parking area, visitors saw a grassy, flat landscape punctuated by the black-and-white-banded tower. Nearby were the white structures of the two keepers' dwellings surrounded by a flat mowed lawn. The starkness was accentuated by the incessant wind, reminding visitors of the presence of powerful forces of nature.

A view from the lighthouse in 1987 revealed the southernmost groin holding the beach sands on the north side. To the south, however, erosion created a different picture. Here, the beach had moved inland approximately one hundred feet. Sand revetments encircled the southeast side of the tower.

To the north, residential development and small business establishments dotted the Buxton Wood area. South and west, the island was covered with dense vegetation of shrubs and young trees.

1989 Cape Hatteras Protection Alternatives/ Design Concept Plan/ Environmental Assessment

National Academy of Sciences

In 1987, at the request of the NPS, the National Academy of Sciences (NAS) took on the task of determining the best alternative for long-term

protection of the lighthouse. Alternatives considered were 1) the COE's recommendation of constructing a seawall with a revetment around the lighthouse, 2) rehabilitating the groin field only, 3) rehabilitating the groin field with a partial revetment, and 4) relocation.

Among the public policies addressed in the study were the National Historic Preservation Act of 1966, the Coastal Barriers Resources Act of 1982, the National Flood Insurance Act of 1968, the National Environmental Policy Act of 1969, and other policies concerning navigation protection, recreation and tourism, and public education.[36] In 1988, the NAS concluded that moving the light station was the best alternative.

Shortly thereafter, the NPS published its 1989 *Cape Hatteras Lighthouse Complex Protection Alternatives/Development Concept Plan/ Environmental Assessment* (*1989 DCP/EA*). The document's preferred alternative was the relocation of the light station, with the recommendation that the move occur during the spring and summer months, when hurricanes and winter storms were less likely to occur. Development details followed the directives established in the *1984 GMP* and are discussed below.

Site Design

Seeking to guarantee one hundred years of protection from the moving shoreline, the NPS proposed moving the complex 2,500 feet southwest of the original site and 1,600 feet from the shoreline, the 1870 distance from the shore. A move corridor, linking the two sites, would be carved out of the existing shrubs and trees growing on the surrounding sand flats.

Although a period of significance was not determined in the plan, the intent to retain the historic integrity of the light station is clear. Based on consultation with the North Carolina State Historic Preservation Office, the structures would retain their original spatial relationships and orientation at the new site. They would be placed in a new eight-acre historic zone that was planted in lawn grasses. Any damage to the structures during the move would be repaired, and all structure exteriors would be restored according to existing historical reports. Historic circulation and fencing patterns among structures would also be reconstructed.

Visitor facilities and access were planned for the area immediately west of the new historic zone and buffered by existing vegetation. The facilities included a parking area, a comfort station, and a walkway to the site. The new site would be retained for bathers and surfers. Accommodations included parking, a comfort station, and showers. Additional details of the plan are found in the following sections.

National Register Eligibility Status

36 CFR, Part 60.14(b), required the new setting and location to be reviewed by the Keeper of the National Register. In the case of damage to the structures during the move, repairs would be made and the North Carolina State Historic Preservation Officer would determine if they still met the eligibility requirements. If the structures were no longer eligible, the NPS would have the complex de-listed. If they remained eligible, the NPS would amend the National Register to reflect the move.[37]

Topography/Hydrology

Old Site. The *1989 DCP/EA* recommended the existing groin field be rehabilitated to protect the light station until it was moved. Afterwards, the groins would not receive any further maintenance.

36. Committee on Options for Preserving Cape Hatteras Lighthouse; Board on Environmental Studies and Toxicology; Commission on Physical Sciences, Mathematics, and Resources; and National Research Council, *Saving Cape Hatteras Lighthouse from the Sea, Options and Policy Implications.* (Washington, D.C.: National Academy Press, 1988), 33. The reader is encouraged to consult this source for a more detailed discussion of these policies.

37. NPS, *Protection Alternatives, Development Concept Plan, Environmental Assessment.* (Denver: Denver Service Center, 1989), 16.

New Location. Rough grading of the new site was recommended to give the appearance of the original setting and to provide for proper drainage.

Structures

1870 Lighthouse. The 1870 light tower would retain its original foundation and height. After ensuring a sound and safe tower, the park would re-open the lighthouse to visitors.

Oil House. The oil house would not be open to the public but would be utilized for U.S. Coast Guard or NPS needs.

Principal Keeper's Quarters. The *1989 DCP/EA* recommended the principal keeper's quarters become a house museum to be based on a historic furnishings plan. Only the part of the cistern above ground would be relocated to its historical location behind the dwelling.

Double Keepers' Quarters. The double keepers' quarters would remain a visitor contact facility with a restroom for park staff. Only the aboveground portions of the three cisterns would be relocated.

Fencing. The eight granite blocks comprising the base of the original fence surrounding the lighthouse would also be moved and the wrought iron fence restored. Fencing was also proposed between and surrounding the two keepers' houses. Type and materials were not specified.

19th Century Site Foundations. Foundation remains would be protected from damage by visitors and interpreted. No efforts would be made to prevent them from eroding into the sea or becoming covered with sand. Interpretive signs and exhibits located at the old site would identify the location of the light complex structures.

Non-contributing Structures. At the new site, the plan proposed new facilities for bathers that included a comfort station, a water fountain, and an external shower. These features would be located near the new parking area. Benches, signs, and wayside exhibits were also proposed but their locations were not specified.

Circulation

Roads. The park access road from Highway 12 would end at a "T" intersection west of the old site parking area. A left turn would take visitors to the old station site. A right turn, to the west, would take visitors along Cape Point Road running on the north side of the new light station location. From there visitors could turn south on a new twenty-four-foot-wide lighthouse access road to the parking area of the new site. This road would have three-foot-wide shoulders and a bicycle path. Service access would be provided via a ten-foot-wide grasscrete lane leading from the parking area to the rear of the dwellings.

At the old site, the *1984 GMP* recommended removal of the service road that ran behind both keepers' houses and redesigning the existing parking to improve circulation.

The CCC camp road was no longer discernible due to successional growth of shrubs and trees. The *1989 DCP/EA* made no mention of the road.

Parking. A third parking area of approximately 180 spaces was installed for bathers in 1988. It was located about 400 feet west of the existing lighthouse parking.

The *1989 DCP/EA* recommended new parking for approximately one hundred visitor vehicles, ten staff vehicles, and service vehicles at the new site. Proposed approximately 400 feet west of the light tower, the parking would be paved and curbed. At the old site, the existing parking would be redesigned, paved, and uncurbed, to include 120 additional spaces.

Walkways. Concrete sidewalks were proposed around the new parking area. From the edge of the parking area, a brick walk was proposed to lead visitors north to the historic zone. Once inside the zone, visitors could choose a brick walk west to the double keepers' dwelling or continue north to the lighthouse. A second brick walk would lead west from the lighthouse to the principal keeper's dwelling, and turn south to the double keepers' house.

At the old site, the 1990 circulation pattern would be restored, connecting the parking area to either the light tower or the double keepers' quarters. Concrete walks were proposed to line the exterior of the parking area. Existing (1989) beach access walks and trails would be retained.

Vegetation

New Site. The NPS would clear an eight-acre area encompassing the structures and plant turf grass to resemble the 1870 site. Another area would be cleared for the parking and service road. The surrounding "natural buffer" of pine and hardwood trees would be maintained, especially the area screening the parking area from the historic zone.

Old Site. Lawn grasses would be restored and maintained to assist in the interpretation of the former site's historic setting. The NPS would retain part of the moving route near the lighthouse for interpretation, but native vegetation would be restored to the rest of the corridor.

Views

Views were not addressed in the *1989 DCP/EA*.

Archeology

The *1989 DCP/EA* recommended an archeological inventory and evaluation before any ground disturbance. The document recognized the CCC camp location west of the move site where archeological remains were visible.

Rare and Endangered Species

The *1989 DCP/EA* stated the Fish and Wildlife Service and the National Marine Fisheries Service had advised the NPS that the endangered and threatened species listed might frequent the lighthouse area as "visitors" but were not known to so significantly use the area as to be affected by the move.

1999 Relocation and Site Development

In 1998, the NPS selected International Chimney Corporation (ICC) of Buffalo, New York, to move the Cape Hatteras Light Station. Details of the historic move are discussed below.

The relocation project received national recognition. After the move, the National Society of Civil Engineers designated the Cape Hatteras Lighthouse a National Historic Civil Engineering Landmark in 1999. The following year ICC received the Outstanding Civil Engineering Achievement Award from the American Society of Civil Engineering, and the Grand Award from the American Consulting Engineers Council for excellence in engineering design.

Topography/Hydrology

ICC cleared and graded the new site in December 1998. Attention was given to providing proper drainage away from all structures. In 1999 they cleared the move road of all vegetation, and graded out a sandy corridor approximately 150 feet wide and 2,900 feet long.

Once all the structures were relocated, ICC removed the tracks and any debris that resulted as a byproduct of the move. The move corridor was back-filled and re-graded to resemble pre-move elevations (fig. 14).

Structures

Spatial relationships and orientation of the light station structures were carefully duplicated at the new site. The two keepers' quarters, oil house, and cisterns were moved in February and March 1999 before the lighthouse. All structures were moved successfully and without damage.

1870 Lighthouse. The famous journey began on June 17, 1999. After stabilizing and raising the tower, ICC moved it along a track system where horizontal hydraulic jacks pushed the tower five feet at a time. Only one-third of the track system

FIGURE 14. Northeast view of move corridor and old lighthouse site, May 2001.

was laid. Once that distance was covered the track was re-assembled in front of the lighthouse and the process began again. Twenty-three days later, the Cape Hatteras Lighthouse, traveling 2,900 feet, reached its home on July 9, 1999. The lighthouse lantern was turned on in a ceremony on November 13, 1999, and the tower was opened to the public on May 26, 2000.

Oil House. The oil house was moved on a flat bed trailer but was not positioned until July after the lighthouse was moved.

Lighthouse Keepers' Dwellings. ICC moved the double keepers' quarters and principal keeper's quarters via rubber-tired dollies to the new site.

Cisterns. Only the aboveground parts of the three cisterns were moved. They were carried on a flat bed trailer and were positioned after both keepers' quarters were relocated.

Non-contributing structures. A new thirty-five-by-forty-foot comfort station with wood siding and deck was built in 2000. It was located west of the new parking area. In addition, a small wood-sided, ten-by-fifteen-foot generator house was installed west of the comfort station.

Old Site. At the old site, five of the 1870 granite foundation stones surrounding the base of the lighthouse were not moved, but were laid on top of the sand in a circular position to temporarily mark the tower's former location. The rest of the stones were moved to a storage area.

Circulation

Roads. In 1999, access to the new light station site was constructed. Visitors arriving from Highway 12 on the Park Access Road came to an intersection about 400 feet west of the old site. A left turn (northeast) went to the old site; going straight (southeast) arrived at the bathers' parking area. Turning west on Cape Point Road led visitors to the new lighthouse site.

Because parking was located east (not west) of the complex, Cape Point Road was redesigned to lead directly to the new parking area. As one approached the comfort station, a gravel service road led west to the generator house. Visitors driving to the Cape Point campground, however, were directed to turn right approximately 200 feet before (north of) the complex to continue west on Cape Point Road.

Parking. In 2000, the NPS installed parking for 110 vehicles and ten buses on the east side of the new site. The area was paved and curbed with four parking islands to be planted with native vegetation. The location was changed to the east side most likely because the park wanted to avoid the archeological remains of the CCC camp for future study and interpretation.

At the original site, ICC removed all concrete walkways within the complex and corridor. The 1974 parking addition to the complex was removed because it stood in the corridor path. Part of the 1988 bathers parking area was also removed for the same reason.

Walkways. The NPS reconstructed the historic walk that connected the two dwellings to the

lighthouse. The new four-and-a-half-foot-wide, brick-on-sand walk was installed in 2000. At the same time, the NPS added a brick extension that led to the dwelling's left entrance. These walks are surrounded by grass pavers, which stabilize turf in high use areas.

A ten-foot-wide concrete walk was constructed the same year to bring visitors west from the visitor parking to the historic zone. Additional five-foot-wide concrete walks were installed around the parking area.

Existing Conditions

Today, tourism is the number one industry at the Outer Banks. Increased development has raised population density in towns and privately owned properties. The only undeveloped areas on Hatteras Island are within the Cape Hatteras National Seashore.

Existing conditions reflect the ongoing development of the site (fig. 15). Three phases of development were planned, of which two have been realized. Phase one involved the preparation and relocation of the light station complex to its new site. Phase two, completed in 2001, provided for site visitation and included the construction of a light station access road, a visitors parking area, a comfort station, a temporary ticket booth, and walkways. Clearing away trees in the historic zone and planting lawn grasses was also completed in this phase.

Phase three will finalize vehicular circulation patterns near the two lighthouse sites. (These are illustrated in Figure 17, General Treatment Recommendations, in the following chapter.) The three-way stop at the junction of the Park Access Road and Cape Point Road will be eliminated and a shortcut will pull the road further to the west. Access to the bathers parking and the old lighthouse site will require a turn off of Cape Point Road.

Another road improvement will change the entrance to the light station by requiring a turn off of Cape Point Road. Drivers on their way to Cape Point Campgrounds will be able to continue directly without stopping.

Phase three will also involve additional development near the old site. The park plans to restore the existing butterfly parking for surfers and visitors to the old site. The 1988 parking area will be restored and designated for bathers. A restroom facility that will include outdoor showers and storage for life-saving equipment is also planned but the location of this facility has not been determined.

Topography/Hydrology

Grading of the new site during Phase One leveled uneven surfaces and gave the historic zone an appearance of a flat landscape similar to the old site. All structures are slightly elevated for proper drainage. In addition, to conform with the American Disabilities Act (ADA), fill was added to the dwelling entrances to bring the brick walks up to first-floor elevations.

A large above-ground drainfield, approximately 100 by 130 feet, was constructed within the move corridor east of the new parking area. The feature was raised approximately four feet above ground and is visible from the parking area.

At the old site, ICC re-graded in 1999 the former lighthouse site and the move corridor to approximate original elevation levels. Presently, the shoreline is approximately seventy-five feet from the tower's former location.

Structures

All historic structures at the new site retain their original orientation and spatial relationships.

1870 Lighthouse. The lighthouse was closed to visitors in June 2001 when staircase support brackets came loose and fell. Repairs were made and the park reopened the lighthouse in 2002.

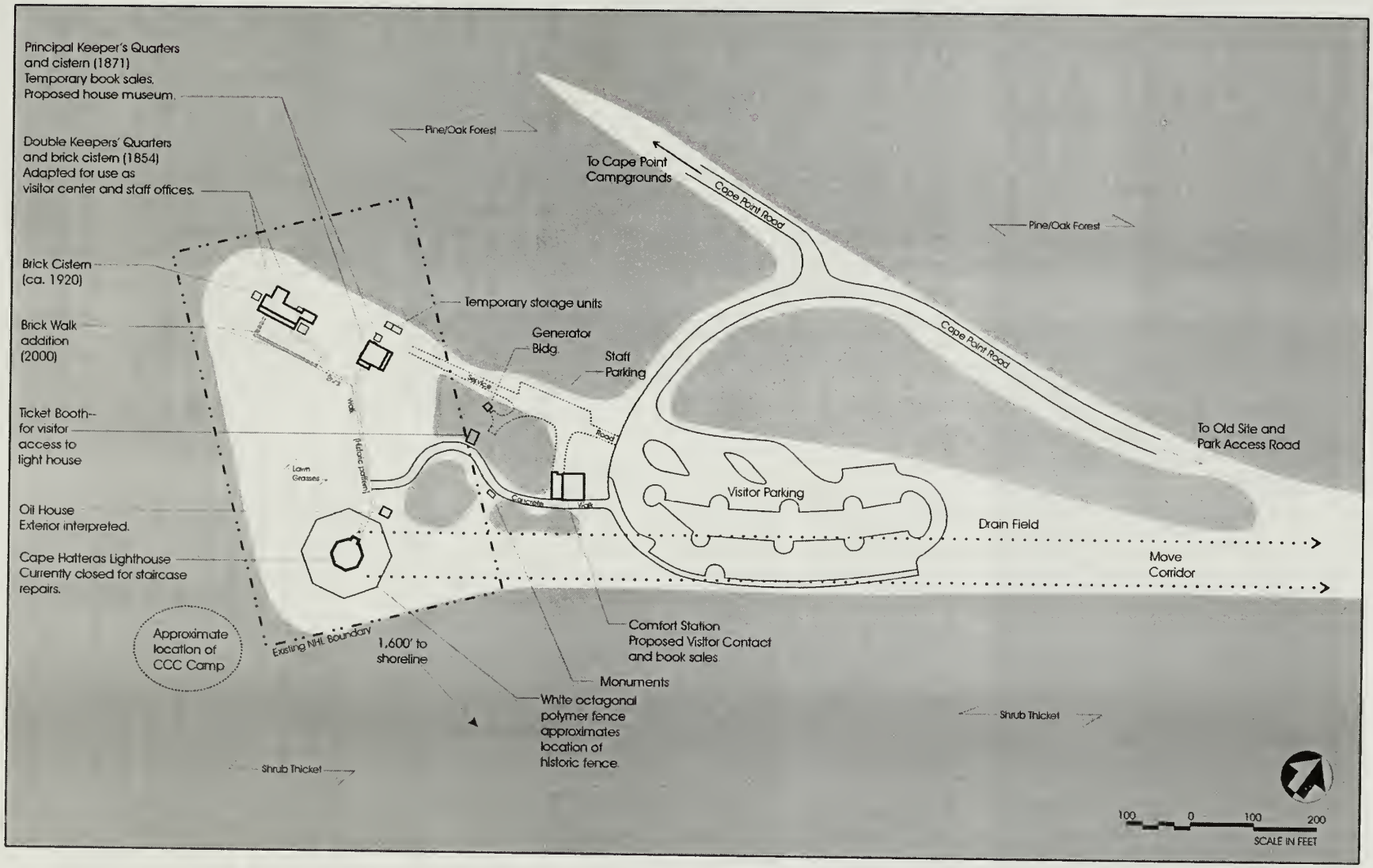

FIGURE 15. Existing Conditions Plan.

Oil House. The oil house exterior is rehabilitated and interpreted to the public but, otherwise, is not being used.

Double Keepers' Quarters. The double keepers' quarters is adaptively used as a visitor center. It contains a museum, interpretive exhibits, and space for film viewing. Staff offices are located on the second floor.

Two modern storage units sit behind (north of) the dwelling and are used for book storage until the contact station opens. At that time, they will be removed.

Principal Keeper's Quarters. The first floor is temporarily being used for book sales that will move to the proposed contact station when constructed. At that time, the park plans to turn the dwelling into a house museum. Park staff presently utilizes the upstairs for offices.

19th Century Site Foundations. The lighthouse's 1870 yellow timber mat, upon which the tower stood, remains buried at the old site. Both keepers' quarters foundation remains also have been left in the ground.

Fencing. -In 2001, the NPS installed a white vinyl fence and gate around the lighthouse. The design approximates the 1893 white board fence that surrounded the two keepers quarters. This is a temporary feature until further direction proposed by the CLR.

CCC Camp. No structures remain from the 1930s, however, ruins of a tennis court are extant.

Comfort Station and Visitor Contact Station. The new site's comfort station was built in 2000. It is a wooden structure with adjoining deck. The visitor contact station will be constructed in phase three. It will be attached to the comfort station and contain an information desk, ticket sales for entry to the tower, and book sales.

Bath House. At the old site, a temporary showers facility is located near the butterfly parking. A permanent facility is planned in phase three.

Generator Building. This small wooden structure is hidden among existing shrubs and trees east of the principal keeper's quarters.

Ticket Booth. In 2000, a temporary, wooden, ten-by-fifteen-foot ticket booth was built for entrance to the lighthouse. It is located north of the light along the concrete walk from the visitor parking area. This structure will be removed when the visitor contact station is opened.

Flagpoles. A new metal twenty-five-foot flagpole stands in a parking island near the comfort station. The old site's flagpole (ca. 1950) still flies the Stars and Stripes.

Monuments. Two small granite monuments stand together on a concrete foundation beside the walk leading to the historic zone. A three-foot-tall rough-cut stone displays a bronze plaque designating the Cape Hatteras Light Station a National Historic Landmark. Beside it is a four-foot rough-cut stone with two bronze plaques. One designates the Cape Hatteras Lighthouse as a National Historic Civil Engineering Landmark and the other recognizes the lighthouse relocation as an Outstanding Civil Engineering Project.

Circulation

Roads. None of the historic road patterns exist today. The interchange between Cape Point Road and the lighthouse access road will be altered to improve access to the site. Cape Point Road will lead directly to the campground. Those desiring to visit the lighthouse will have to turn off Cape Point Road and follow the existing access into the parking area.

No historic circulation features at the old site are extant. NPS concrete walks were removed during the move. Only the NPS service/access road from Cape Point Road is extant. In addition, no circulation features of the CCC camp exist. The entire area is covered in shrub-thicket community vegetation.

Parking. The parking area at the new location has been used to capacity since the tower was moved and reopened. The number of visitors to

FIGURE 16. View of Keepers' Quarters and surrounding vegetation, Spring 2001.

enter the lighthouse in 2000 was approximately 220,000.

NPS staff has begun angle-parking on both sides of the gravel service road near the comfort station. Wheel stops were installed in 2000 to accommodate approximately eight to ten vehicles.

The butterfly parking at the old site is extant. The 1988 bathers parking, partly destroyed during the move, was temporarily repaired. Beach-goers are routed to this parking area between the old and new sites. The park plans to reconfigure the bathers parking in phase three.

Walkways. Visitors use a ten-foot-wide concrete walk at the visitors parking area to enter the historic zone. Once there, they follow four-and-a-half-foot-wide brick walks replicating the historic circulation patterns to the lighthouse and associated historic structures. At the old site, all walks were removed during the relocation.

Vegetation

Bermuda grass was planted in spring 2001, but much of the area has been overused by visitors and is bare. No foundation plantings exist. The complex is surrounded by a dense shrub-thicket community to the south, which gives way to a pine/oak community to the west and north. To the east lies the open move corridor (fig. 16).

Contractor efforts to screen the above-ground drainfield near the parking area failed with the loss of trees and shrubs installed in 2000. Another screening effort was attempted to block viewing of the parking area from the lighthouse base. Young oaks and cedars were planted in the move corridor adjacent to the white fence surrounding the lighthouse.

Approximately 50 percent of the old site remains in exotic grasses that are mowed during the growing season. The remainder is mostly sand with scattered native forbs. Near the shoreline grow sparse amounts of American beach grass and sea oats. Around the pond exotic grasses are also maintained by mowing. No aquatic vegetation is present.

The CCC campsite is covered with a shrub-thicket community of wax myrtle, cedar, red bay, live oak, prickly pear, yucca, and other species. No designed plantings were discerned in a recent field investigation by the author.

Views

Driving from Highway 12 along the Park Access Road, drivers still experience the "closed" narrow view of immediate surroundings, until they turn a long curve and see the lighthouse in the distance. From there it is visible all the way to the entrance and the lighthouse and oil house are in plain view from the parking area. The lighthouse keepers' quarters are screened by native trees and shrubs until visitors walk past the ticket booth into the designated historic zone.

Once inside the historic zone, visitors have unimpeded interior views of the complex structures. NPS facilities, such as the comfort station, generator building, and ticket booth, are screened by native shrubs. The open move corridor, however, allows a view of the parking area to intrude on the historic scene.

Long views are impeded by the surrounding forest and shrub communities. From the base of the lighthouse, the move corridor view is compromised by the parking area. Only visitors at the top of the light tower get an uninterrupted panorama of the surrounding landscape. From there, they can see the vegetation surrounding the new site, the shoreline, Diamond Shoals (on a clear day), and the move corridor. The wide, sandy swath beyond the parking area is a strong visual feature leading the eye toward the old site.

Views of the lighthouse from the old site provide a good sense of the distance covered in the move.

Adjacent Lands

Practically all of Hatteras Island's private land is developed into hotels, private homes, and small businesses. The concentrated high density of these areas contrasts with the open landscapes of the National Seashore. None of these developed lands are close enough to impact the new lighthouse location.

Archeology

In 1999, the NPS's Southeast Archeological Center (SEAC) conducted tests at the new site and move corridor and found no material cultural. At the old site, however, they recommended additional testing at selective structure locations such as the privies and the outbuildings.[38] Surface artifacts associated with the CCC period were also observed at the campsite south of the lighthouse. No formal investigation has been recommended for this area.

38. John E. Cornelison, Jr., *Phase I Archeological Testing of the Cape Hatteras Lighthouse Complex, Prior to Relocation.* (Tallahassee, FL: NPS Southeast Archeological Center, 1999), 2.

Analysis of Integrity of Historical Significance

The analysis section identifies and objectively analyzes a site's significant landscape characteristics. The process is the groundwork for establishing a period of significance and for identifying a framework against which all changes in the landscape are compared. It is an important step for sorting and integrating natural and cultural resource data in order to develop appropriate and relevant treatment strategies.

Little if any integrity remains of the old lighthouse site. All historic features, including structures, fences, and circulation patterns, have been either lost or removed. Likewise, the CCC camp south of the existing lighthouse location has lost its integrity. This camp was not particularly different from other camps at the Outer Banks and therefore has no outstanding significance, other than its affiliation with the lighthouse station.

For these reasons, this chapter discusses only the integrity of the new site and its ability to convey its association with the past. In addition, features associated with the move are evaluated.

Resources associated with the Cape Hatteras Light Station Complex are the lighthouse, the oil house, the double keepers' quarters, the principal keeper's quarters, the cisterns, the move corridor, and historic views. Monuments include two stone markers. One commemorates the new site as a National Historic Landmark and the other, as a National Civil Engineering Landmark. Archeological remains will be addressed in the following chapter - Treatment Recommendations.

Period of Significance

The period of significance, 1870 to 1936, is stated on the site's 1977 National Register and 1998 National Historic Landmark nomination forms. The CLR recognizes this period as the most important in the history of the light station. The move event and associated landscape features will also be evaluated in this chapter.

The National Register Nomination

Cape Hatteras Light Station Complex was listed on the National Register in 1977 as an historic district. The nomination form included the lighthouse, oil house, 1803 lighthouse ruins, double keepers' quarters and the principal keeper's quarters. It described the ten-acre property as being "L-shaped," but added that the boundaries were arbitrary and were based on "modern intrusions and a changing shoreline."

The 1998 National Historic Landmark nomination form listed the lighthouse, oil house, and the two keepers' quarters as contributing properties. By this time the 1803 lighthouse ruins had been washed into the sea. The "L-shaped" boundary in the 1977 nomination was adopted. The nomination described the property as bounded on the north by the Coast Guard facility, on the west by Buxton Woods, on the south by dunes and open beach, and on the east by barrier dunes and the Atlantic Ocean. The boundary encompassed approximately ten acres of land.

The North Carolina State Historic Preservation Office (SHPO) oversaw the NPS's request to relocate the light station in 1999. In order to retain National Register listing, the SHPO specified the relocated station

1) maintain the coastal setting of the original site,

2) maintain the original orientation to the shoreline and the original spatial arrangements of the historic structures, and

3) have no structural damage to the resources resulting from the move.

These criteria were met and the Keeper of the National Register, following the advice and approval of the North Carolina SHPO, approved retention of the complex's National Register designation in 1999.

New National Historic Landmark Boundary

Prior to August 2000, the NPS considered enlarging the old site's boundary to include the new location. However, no justification could be found for such an action. The old site no longer retained any integrity.

A new boundary was therefore established. Because all other requirements had been met for the National Register re-designation, a "technical correction" was issued to establish new NHL boundaries. A boundary encompassing 5.9 acres, which included the lighthouse, both keepers' dwellings, oil house, and cisterns, was approved in August 2000. The new district is rectilinear, 650 feet by 400 feet.

Evaluation of Integrity

An historic landscape with integrity conveys its significance. Within this concept the National Register criteria provides seven qualities that, when combined, define integrity of a given site. The seven aspects are location, design, setting, materials, workmanship, feeling, and association. In this section, the CLR evaluates the integrity of the light station's landscape by discussing aspects relevant to the new site.

Location

The aspect of location concerns the place where the historic event occurred, or where the historic property was built.[1] The new site approximates the original 1870 location from the shore, i.e., 1,600 feet. All historic structures at the new site retain their original orientation and spatial relationships. This reconstruction of distances reinforces integrity of location.

Design

Design involves the conscious decisions made to form or develop an historic property's space, structure, and/or style.[2] The new site reflects elements of this aspect in the replication of spatial relationships among structures and the walkway pattern that connects the dwellings with the lighthouse. Although reconstructed, this element of integrity is present.

Setting

Setting refers to the character of a landscape and how it played a role in the historical event. It is the physical environment and its relationship to the period of history.[3] The light station's setting is probably the most important aspect of the site's significance. It is the barrier islands' dynamic environment that has provoked the centuries-old protection measures for the lighthouse. The 1999

1. *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin #15. (NPS, Interagency Resources Division, 1991), 44.
2. Ibid.
3. Ibid., 45.

move event is simply the latest, most monumental, event in the history of the complex.

Today's lighthouse setting most closely reflects the later part of the period of significance, more specifically, the 1930s. First, it is found in the number of structures currently present. By the mid-1930s, the only outbuildings remaining were the privies and cisterns. By 1940, the cisterns were the sole survivors. These structures, along with the lighthouse and station dwellings, exist today.

Second, existing shrub thickets and pine/oak forest reflect the outcome of the CCC revegetation project. Such surroundings reinforce the integrity of setting by illustrating the CCC vision of protecting the shore with native vegetation that would slow erosion and lower wind damage and salt spray.

Restored spatial arrangements and period walkways among the station's four structures contribute to the site's historic setting. The area between structures has been cleared of woody vegetation, restoring historic interior views.

Impacts to integrity can be found in the loss of vistas so prevalent throughout the historic period. CCC vegetation has obscured views to the sea and the surrounding landscape. From the top of the lighthouse one can enjoy a panoramic view of the old site, the move corridor, the new site, the shore, and the island's extensive cover of native vegetation.

Other impacts are found in the loss of historic fences, walkways, roads, and the freshwater pond. Also, noncontributing structures, such as the visitors parking area, aboveground drainfield, ticket booth, and comfort station, intrude into the historic setting because of their proximity.

Finally, the biggest impact to setting is the 1999 move corridor. It dominates the complex's setting and frames a view from the tower to the old site. Although this feature is not part of the 1870-1936 landscape, it illustrates the continuing theme of protecting the Cape Hatteras Light by utilizing the most advanced technology available.

Feeling

A landscape with integrity of feeling can express the historic sense of a particular period of time.[4] The new site contains contrasting elements that evoke a sense of the historic period and recent NPS development. The architecture of the historic lighthouse, oil house, and the two keepers' quarters reminds one of an earlier time. Reconstructed circulation patterns give meaning to spatial arrangements of the past. But the non-contributing park features (walks, parking area, structures) promote a feeling of newness.

A sense of history is somewhat affected, too, by the lack of vistas, prevalent during the entire historic period. Today, visitors see the shrub thickets and woodlands that have grown as a result of the CCC vegetation planted in the 1930s. The sense of confinement within the existing setting diminishes the site's integrity of feeling. Yet, it was the intent of the CCC to "protect" the shore by covering it with native vegetation and, therefore, eliminate distant views.

Association

Integrity of association is the direct link between an important historic event and a cultural landscape. It is not only the expression of where an event took place but a combination of other aspects of integrity that define the quality of that association.[5]

Although the lack of open views weakens the site's association with the historic period, the existing dense vegetation is a reminder of the CCC work to protect the lighthouse at the end of the historic period. In essence, the new site represents a mature CCC landscape of the 1930s. Spatial relationships and orientation of historic structures contribute to the integrity of this period. Impacts to association are found in the proximity of new non-contributing structures and features.

Association with the light station's constant struggle with nature is strongly exhibited in the wide, sandy move corridor. This feature is

4. Ibid.
5. Ibid.

unquestionably prominent and connects the new site to the former lighthouse location physically and thematically.

Summary

The integrity of the new site is most strongly associated with years ending the historic period. The impact of the CCC work at Cape Hatteras is still evident in the vegetation that surrounds the complex and the number of historic structures that remain.

Spatial relationships and orientation of buildings, circulation patterns, and the distance from the shore promote strong integrity of setting, feeling, and association with the historic period. In addition, the relocation ties directly to the site's theme of constant vigilance and response to protect and maintain the Cape Hatteras Light.

The proximity of newly developed noncontributing structures and the loss of extensive views diminish integrity of setting and feeling. But overall site integrity is very good in its representation of the later part of the historic period.

The move corridor has strong integrity of association with the 1999 relocation and represents a possible new period of significance for the light complex.

Amendments to the National Register

The CLR recommends amendments to the National Register to reflect the light station's relocation. A study of the relocation event, and its contributing features is warranted to determine a second historic period for the light station. (See "Studies Recommended" in the following chapter.)

Treatment Recommendations

The following discussion of treatment recommendations focuses on a preservation/ rehabilitation strategy for the resources at the old and new Cape Hatteras Light Station sites that contribute to the historic period of significance. General recommendations applicable to the historic site precede more specific recommendations for individual features. This section provides treatment for historic as well as non-historic features. Recommendations are illustrated on treatment plans at the end of this chapter (figs. 19 & 20).

General Recommendations

NHL Boundary

Enlarge the existing NHL boundary to the ten-acre size established in the 1977 National Register nomination. This will provide additional protection to the site's south and west sides.

Interpretation

- Base interpretation of Cape Hatteras Light Station's changes on responding to the tremendous environmental forces shaping the barrier islands. This is a different approach to the interpretation done at the two other CAHA lighthouses (Bodie Island Light Station and Ocracoke Light Station), but it incorporates all physical changes, including relocation, into a single interpretive theme.

- Interpret all previous lighthouse locations, including the 1803 site.

- Take advantage of the site's history to interpret the significance of the CCC and NPS planning efforts that were part of the New Deal. Although the extensive CCC conservation work is disputed today, it was the most revolutionary environmental practice of its time. Cape Hatteras State Park was also the first parcel set aside for the nation's first national seashore.

- Interpret the CCC camp with an outside exhibit located near the terminus of the Lighthouse Road trail.

Vegetation

- Allow natural processes of wind and wave action to continue the die-back of native vegetation in dunes and surrounding sandflats.

Views

- Protect the future panoramic view of the ocean and shore that will occur as wind and wave action destroy existing vegetation north, east, and south of the historic zone.

Move Corridor

- Place the move corridor in a protective historic management zone. By doing so, this feature will be protected by the Section 106 review process should development within the corridor be proposed.

- Interpret the twenty-three-day move event somewhere between the lighthouse parking and the bathers parking. Locate a trail that leads to a spot where actual move rails depict the distance the tower moved in one day. This would give visitors an idea of the project's magnitude and would encompass the latest segment of the Cape Hatteras Light Station story.

- Allow natural successional processes to occur in the corridor.

General Landscaping

- Limit landscaping of non-historic structures at the new site to native species. This includes all parking areas, the comfort/contact station, the granite monuments, the generator

building, and the aboveground drain field. A list of plants can be found in the appendix.

Studies Recommended

- Conduct archeological investigations of the privies and other outbuilding locations at the old site. Include findings in the park's interpretive program. If any outbuildings are proven to have existed through the 1930s, their locations should be interpreted at the new site to reinforce the spatial arrangements of the lighthouse complex. Presently, however, it appears none of the outbuildings survived.

- Assess the 1999 relocation event and associated landscape features to determine the need for an additional period of significance. Although the resources associated with this event are less than fifty years-old, the extraordinary occasion of moving the lighthouse may meet the "Exceptional Importance" criteria as defined by the National Register of Historic Places.[1]

Cape Hatteras Light Station Old Site

Topography/Hydrology

- Continue the existing park policy of allowing the sea to reclaim the old site.

Structures

- Include the former location of the lighthouse, and both keepers' quarters, in the park's interpretive plan. Consider marking the site in a way that could be viewed from the new site.

- Interpret the 1803 lighthouse by physically marking its former location (now in the sea).

- Interpret the former (1870) light tower site, once inundated, by marking its location in the sea.

Circulation

- Remove the existing service road north of the surfers parking area.

Vegetation

- Mow the former site as needed to maintain the open area where the lighthouse complex once stood.

- Allow natural vegetation changes to occur in and around the pond.

Views

- Maintain an open view from the old site to the lighthouse at its new location.

Cape Hatteras Light Station Existing Site

Structures and Features

- Maintain the exterior of extant keepers'quarters and cisterns white, which is consistent with the end of the historic period.

- Restore the historic concrete post and metal rail fence that surrounded the lighthouse at the end of the historic period. Use the original granite stones that supported an octagonal fence there throughout the historic period (fig. 17).

- Restore the historic concrete post and wire fence that surrounded the principal and double keepers' quarters at the end of the historic period. This is consistent with the period of significance in that a rectangular fence surrounded the quarters from 1888 to ca. 1950. Nine hundred yards of four-foot-tall welded wire fencing, with 8-inch-by-12-inch rectangles, can be specially made for approximately $500 (fig. 18).[2]

1. *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin #15. (NPS, Interagency Resources Division, 1991), 42.

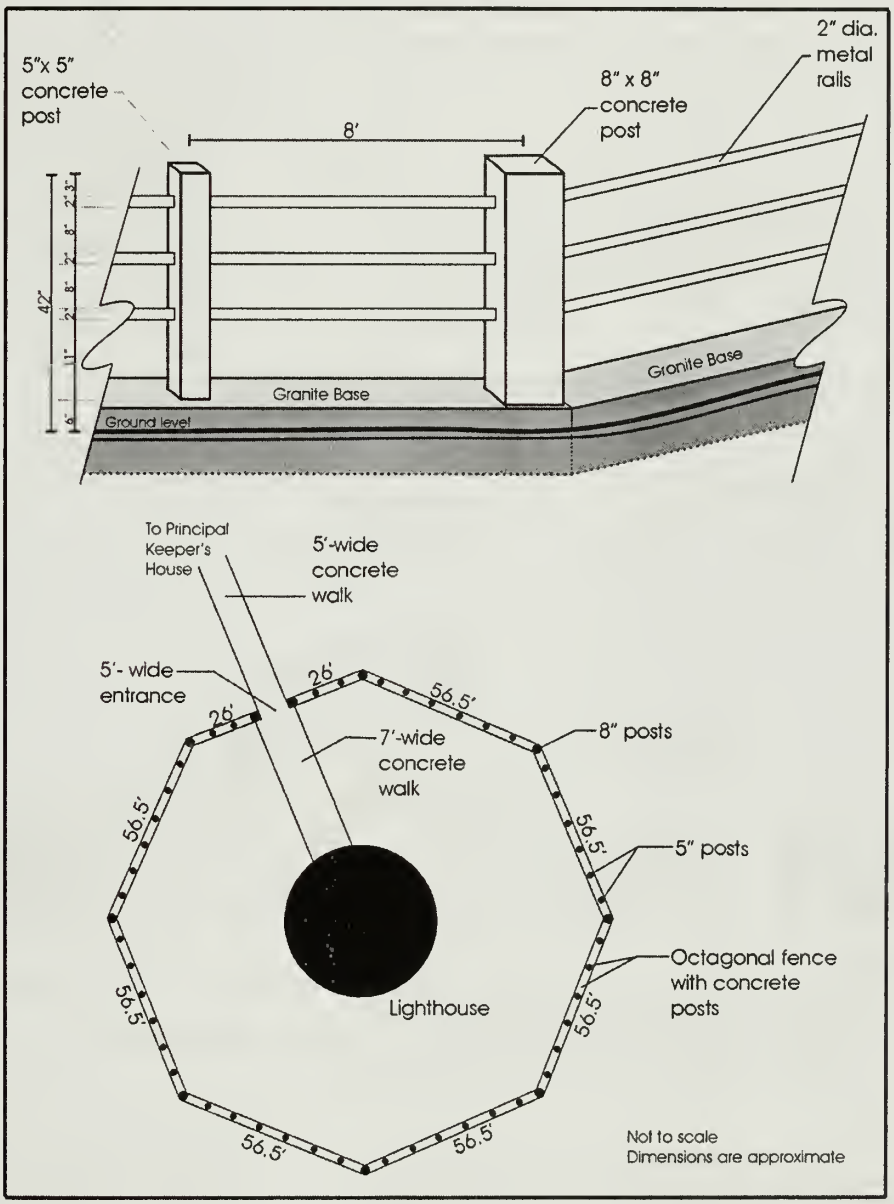

FIGURE 17. Lighthouse Fence Details.

- Resolve, through long-range planning, the relocation of the visitors parking and aboveground drain field. They are located within the move corridor and compromise the integrity of this feature.

Circulation

- Restore the historic lighthouse road as an eight to ten-foot-wide dirt path from Cape Point Road to a terminus in the wooded area south of the lighthouse. This is near the site of the CCC "beach camp" and is a good location for a CCC wayside exhibit.
- Tie-in the restored lighthouse road with the picnic area on Cape Point Road, just north of the light station.
- Replace existing brick walks, representing historic circulation patterns, with five-foot-wide concrete walks. This includes the walkways from the double keepers' quarters to the principal keeper's quarters and the lighthouse (fig. 18).
- Replace the existing seven-foot-wide brick walk entering the lighthouse with a seven-foot-wide concrete walk.

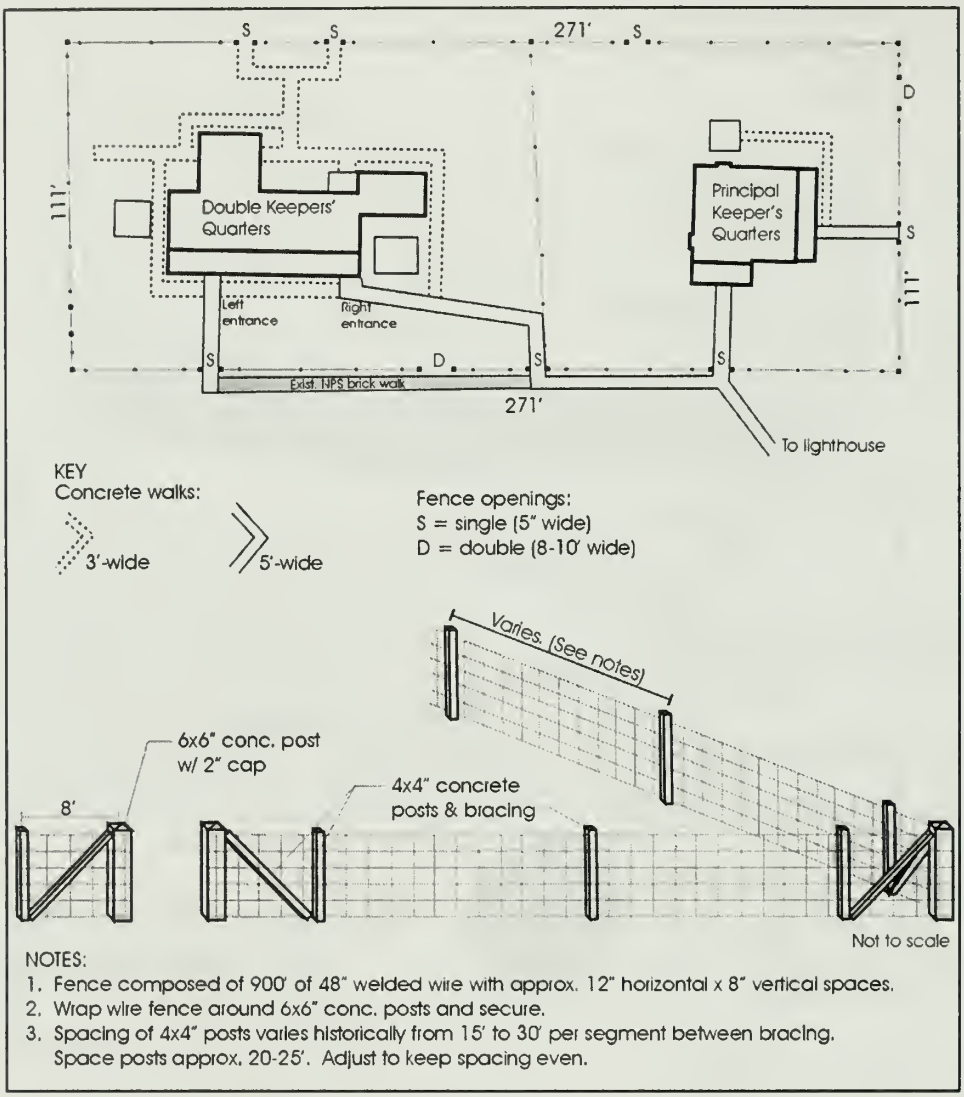

FIGURE 18. Keepers' Quarters Fence and Walk Details.

- Restore a five-foot-wide concrete walk from the east door of the principal keeper's house to the proposed fence. This walk is a visual contribution to circulation patterns and not to be used as a visitors entrance. Therefore, elevation changes to meet ADA requirements are not necessary (fig 18).

- Restore the historic three-foot-wide concrete walks surrounding the double keepers' quarters that led to outbuilding locations. These walks will represent a visual contribution to the historic patterns only and will not be used for access to the double keepers' dwelling. Therefore, elevation changes to meet ADA requirements are not necessary. Provide interpretation at the terminus of these walks of the site's 19th-century outbuildings (fig. 18).

- Restore the five-foot-wide concrete walk from the double keepers' quarters left entrance to the fence (fig. 18).

- Retain the section of existing brick walk (2001) that connects the two restored double keepers' entrances. Because this section is noncontributing, a different type of material is appropriate to distinguish it from the historic pattern of concrete (fig. 18).

2. Quoted from a local fencing manufacturer in the Charlotte NC area.

Vegetation

- Allow die-back of native vegetation within and outside the NHL boundary to enlarge the open space of the light station. Plant native grasses within the NHL boundary and elsewhere to stabilize sands as needed.

- Establish lawn grasses (Bermuda grass is recommended) in all fenced areas of the historic zone. Maintain at three inches in height during the growing season.

- Maintain existing native vegetation and natural successional species around noncontributing NPS structures and access roads.

Views

- Improve internal views within the historic district by allowing tree and shrub die-back to the NHL boundary and beyond. Replace with native grasses.

- Protect the open view through the move corridor towards the old site.

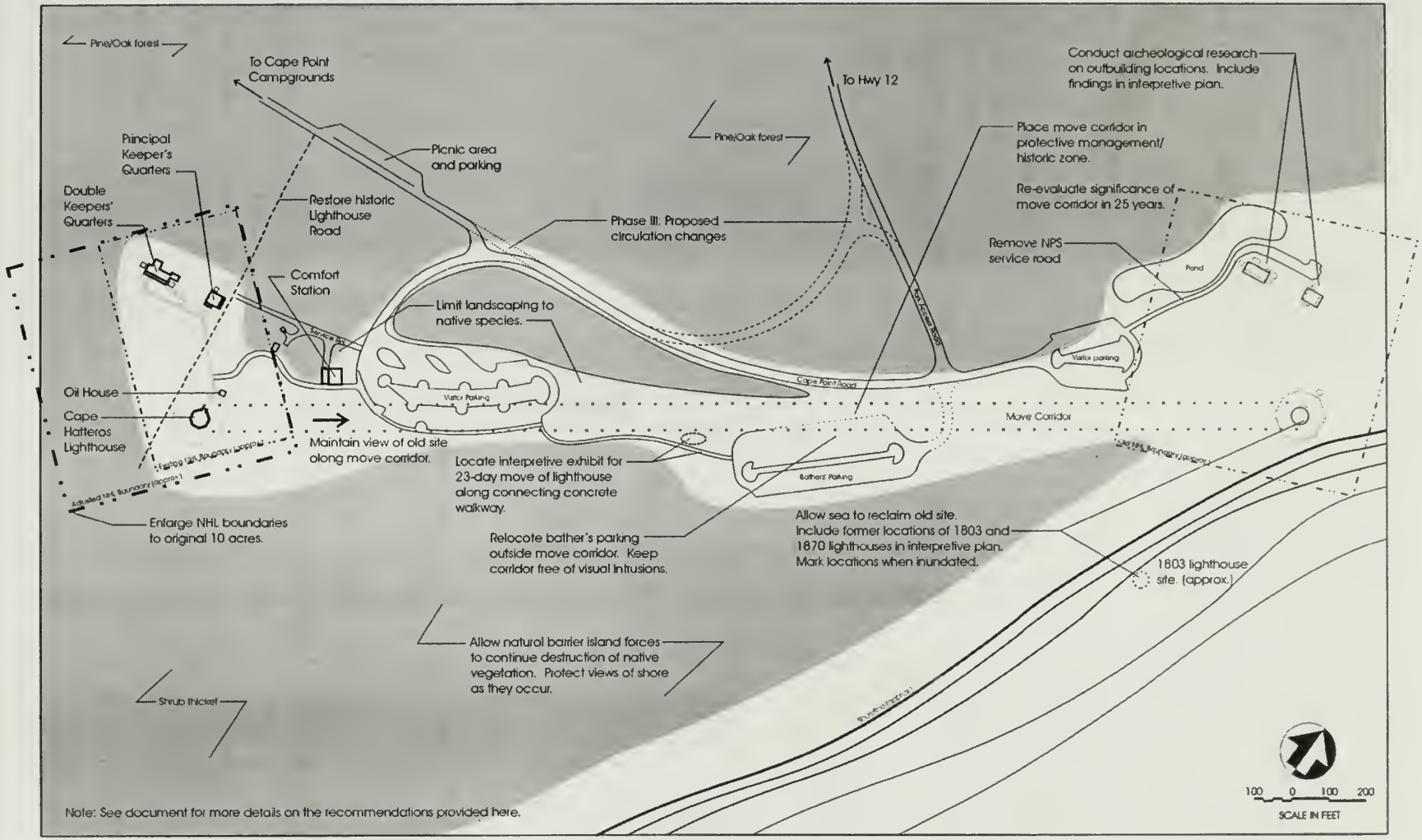
Pine/Oak forest
To Cape Point Campgrounds
Principal Keeper's Quarters
Double Keepers' Quarters
Picnic area and parking
Restore historic Lighthouse Road
Comfort Station
Phase III: Proposed circulation changes
Limit landscaping to native species.
Oil House
Cape Hatteras Lighthouse
Maintain view of old site along move corridor.
Enlarge NHL boundaries to original 10 acres.
Locate interpretive exhibit for 23-day move of lighthouse along connecting concrete walkway.
Relocate bather's parking outside move corridor. Keep corridor free of visual intrusions.
Allow natural barrier island forces to continue destruction of native vegetation. Protect views of shore as they occur.
Shrub thicket
To Hwy 12
Pine/Oak forest
Conduct archeological research on outbuilding locations. Include findings in interpretive plan.
Place move corridor in protective management/ historic zone.
Re-evaluate significance of move corridor in 25 years.
Remove NPS service road
Pond
Visitor parking
Cape Point Road
Move Corridor
Bathers' Parking
Allow sea to reclaim old site. Include former locations of 1803 and 1870 lighthouses in interpretive plan. Mark locations when inundated.
1803 lighthouse site. (approx.)
100 0 100 200
SCALE IN FEET
Note: See document for more details on the recommendations provided here.

FIGURE 19. General Treatment Recommendations.

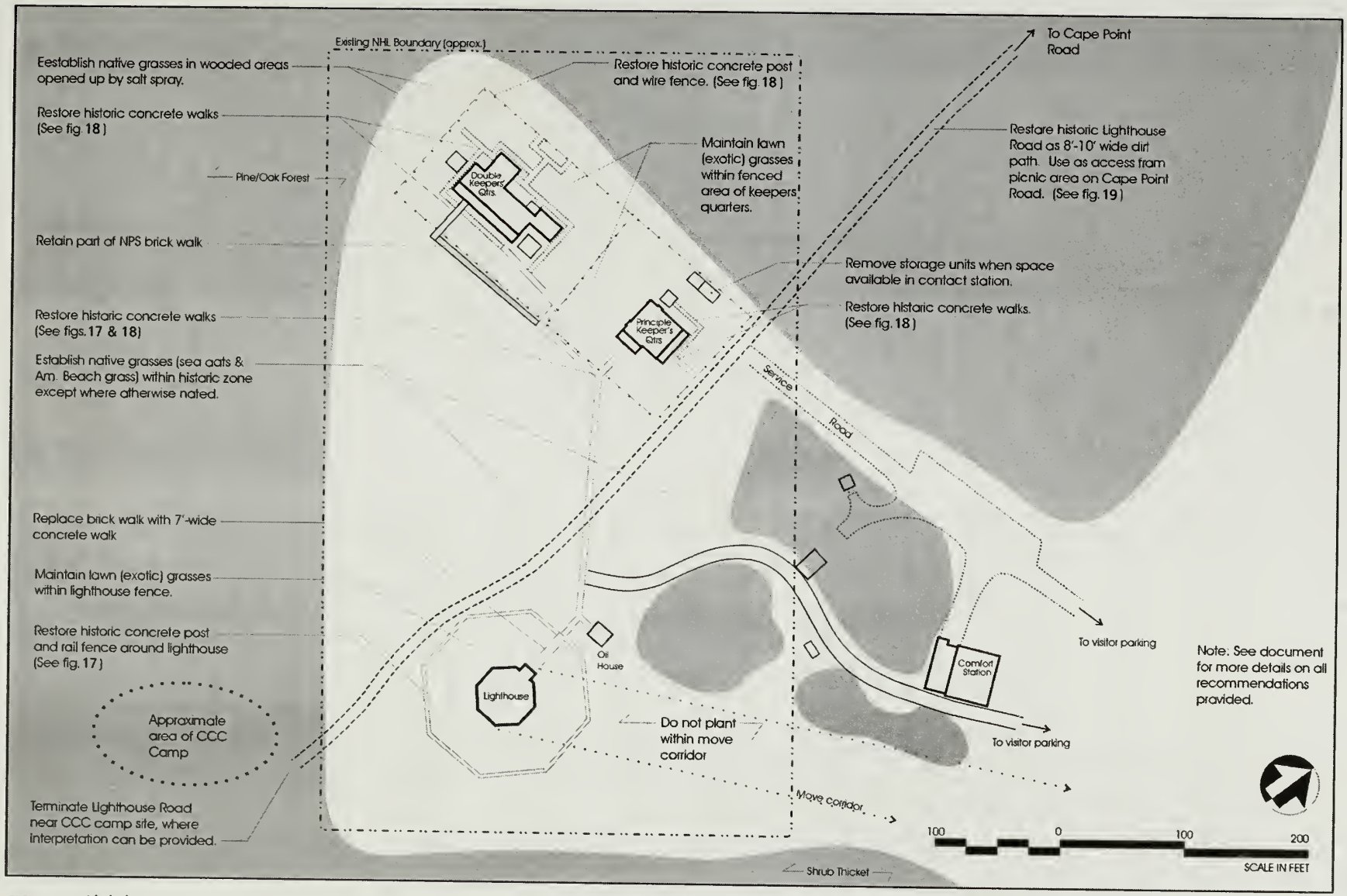
Existing NHL Boundary (approx.)
Eestablish native grasses in wooded areas opened up by salt spray.
Restore historic concrete walks (See fig. 18)
Pine/Oak Forest
Retain part of NPS brick walk
Restore historic concrete walks (See figs. 17 & 18)
Establish native grasses (sea oats & Am. Beach grass) within historic zone except where otherwise nated.
Replace brick walk with 7'-wide concrete walk
Maintain lawn (exotic) grasses within lighthouse fence.
Restore historic concrete post and rail fence around lighthouse (See fig. 17)
Approximate area of CCC Camp
Terminate Lighthouse Road near CCC camp site, where interpretation can be provided.
Restore historic concrete post and wire fence. (See fig. 18)
Maintain lawn (exotic) grasses within fenced area of keepers quarters.
Double Keepers Qtrs.
Principle Keeper's Qtrs
Remove storage units when space available in contact station.
Restore historic concrete walks. (See fig. 18)
To Cape Point Road
Restore historic Lighthouse Road as 8'-10' wide dirt path. Use as access from picnic area on Cape Point Road. (See fig. 19)
Service Road
Oil House
Lighthouse
Comfort Station
To visitor parking
To visitor parking
Do not plant within move corridor
Move corridor
Shrub Thicket
Note. See document for more details on all recommendations provided.
100 0 100 200
SCALE IN FEET

FIGURE 20. Lighthouse Complex Treatment Recommendations.

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Appendix: Barrier Island Vegetation

Sea Beach

Physalis sp.	Groundcherry
Croton sp.	Gulf croton
Ipomea sp.	Morning glory

Ocean Beach Dunes

Spartina patens	Saltmeadow cordgrass
Cenchrus tribuloides	Sandbur
Ammophila breviligulata	American beachgrass
Uniola paniculata	Sea oats
Panicum amarum	Running beachgrass
Triplasis purpurea	Purple sandgrass

Wooded Dunes

Myrica cerifera	Wax myrtle
Myrica pensylvanica	Bayberry
Baccharis halimifolia	Eastern baccharis
Ilex vomitoria	Yaupon
Quercus virginia	Live oak
Pinus taeda	Loblolly pine
Callicarpa americana	Beauty berry
Ilex opaca	American holly
Juniperus virginiana	Red cedar
Persea borbonia	Red bay
Quercus nigra	Water oak
Quercus phellos	Willow oak
Rhus copallina	Dwarf sumac
Sabal minor	Dwarf palmetto
Vaccinium sp.	Vaccinium
Parthenocissus quinquefolia	Virginia creeper
Smilax sp.	Greenbriar
Vitis rotundifolia	Muscadine
Zanthoxylum clava-herculis	Hercules club
Gelsimium sempervirens	Yellow jessamine
Arundinaria gigantea	Bamboo
Eupatorium capillifolium	Dog fennel
Mitchella repens	Partridge berry
Panicum sp.	Panic grass

Sand Flats

Ampelopsis arborea	Pepper vine
Baccharis halimifolia	Eastern baccharis
Borrichia frutescens	Sea-oxeye
Hypericum sp.	St. Johnswort
Myrica cerifera	Wax myrtle
Myrica pensylvanica	Bayberry
Persea borbonia	Red bay
Quercus virginiana	Live oak
Rhus copallina	Dwarf sumac
Salix nigra	Black willow
Smilax sp.	Greenbriar
Andropogon glomeratus	Bushy beardgrass
Andropogon virginicus	Broomsedge

Ammophila breviligulata	American beachgrass
Cenchrus tribuloides	Sandbur
Distichlis spicata	Inland saltgrass
Muhlenbergia capillaris	Purple muhly
Panicum sp.	Panic grasses
Panicum virgatum	Switch grass
Ambrosia artemisiifolia	Annual ragweed
Apocynum cannabinum	Indianhemp
Aster sp.	Asters
Bidens sp.	Beggar ticks
Cirsium horridulum	Yellow thistle
Croton punctatus	Seaside croton
Cyperus sp.	Sedges
Diodia teres	Poorjoe
Diodia virginiana	Buttonweed
Eupatorium capillifolium	Dog fennel
Euphorbia sp.	Euphorbia
Euthamia graminifolia	Flattop goldenrod
Fimbristylis castanea	Marsh fimbry
Gaillardia puchella	Blanket flower
Opuntia drummondii	Prickly pear
Physalis viscosa	Ground cherry
Pluchea sp.	Pluchea
Rubus sp.	Blackberry
Scirpus sp.	Bullrush
Solidago sempervirons	Seaside goldenrod
Typha angustifolia	Narrowleaf cat-tail
Typha latifolia	Cat-tail

Tidal Marshes

Baccaharis halimifolia	Silverling
Borrichia frutescens	Sea-oxeye
Iva frutescens	Marsh elder
Aster sp.	Aster
Distichlis spicata	Inland salt grass
Juncus roemerianus	Black rush
Salicornia virginica	Glasswort
Scirpus sp.	Bullrush
Solidago sempervirens	Seaside goldenrod
Spartina alterniflora	Smooth cordgrass
Spartina cynosuroides	Big cordgrass
Spartina patens	Saltmeadow cordgrass

Freshwater Ponds

Typha angustifolia	Narrowleaf cat-tail
Typha latifolia	Cat-tail
Scirpus sp.	Bullrush
Bidens sp.	Beggar ticks
Hydrocotyle sp.	Pennywort
Persicaria sp.	Smartweed
Salix nigra	Black willow

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